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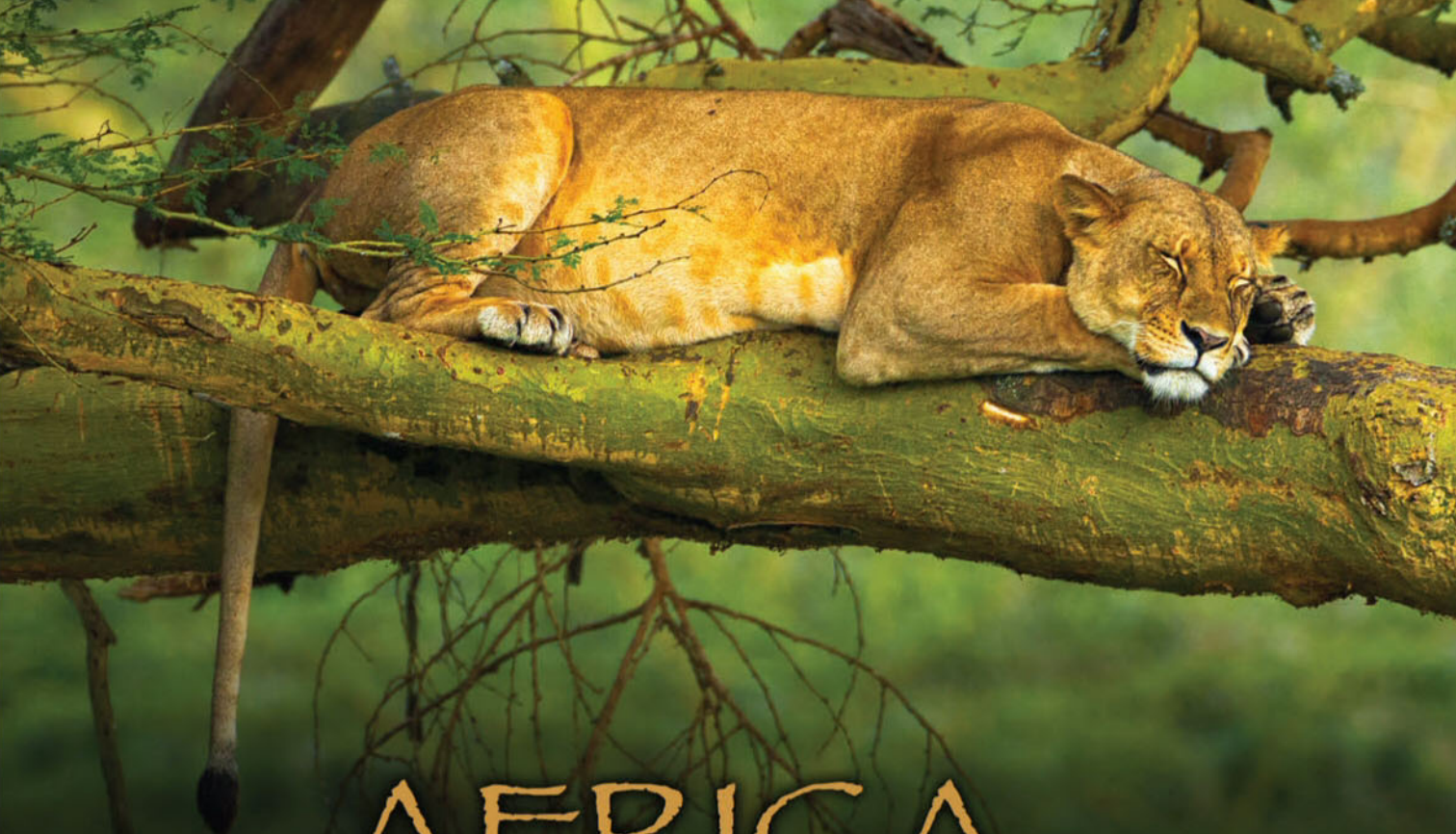
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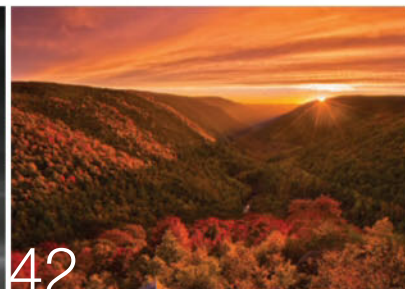
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# Into The Wild



With its 24-megapixel sensor and EXPEED 4 processor, the Nikon D750 takes features from Nikon's other high-end DSLRs, the D610 and D810, to create a powerful tool for nature photographers. Award-winning photographer and Nikon Ambassador Moose Peterson has been using the D750 since late 2014, and he shares his impressions and insights on the standout capabilities of this impressive DSLR.

"The image quality is really quite amazing," says Peterson. "I really like the way it deals with color and white balance. And it does a great job of getting those multiple variable strands of a particular color and bringing them to life, rather than just melding them together. They're all just very distinct, and that color is very important in my photography."

To get the best possible performance from the D750, Peterson uses NIKKOR lenses. "The AF-S NIKKOR 24mm f/1.4G ED

## Wildlife professional and Nikon Ambassador Moose Peterson takes the Nikon D750 into the field to create his sharpest photos ever.

shines because of the big, beautiful image that it produces—the 24mm f/1.4 being such a tack-sharp lens. I've been using it a lot in portraits, and the detail is incredible. The combination is just dynamite! I also use the AF Fisheye Nikkor 16mm f/2.8D and the AF-S NIKKOR 18-35mm f/3.5-4.5G ED a lot on this camera. I was just down at Bosque del Apache with the 18-35mm and the D750, and we had thousands of geese and cranes flying overhead. Every single one of those birds was really sharp, and you can put them on a screen or a print and see the feather detail. It's impressive."

Beyond image quality, the D750 has been designed to be intuitive and user-friendly. Peterson explains, "The D750 is compact and light, especially compared to some other cameras with similar resolution and features. Its flip-out monitor is the

cat's meow. I can flip it out and take macro pictures at low levels comfortably." Everyone is shooting video these days, and Peterson is no exception. He describes how much easier that experience is with the D750: "I've been shooting video more and more. Looking for the various video controls can be frustrating on other cameras, but the D750 has its own menu system just for the video content. I really enjoy that feature."

We all want to share our images. Social media has made that easy to do, but many

serious photographers, including Peterson, have felt limited by the smartphone-centric nature of apps like Instagram. With built-in WiFi, the D750 gives you a new solution, as Peterson explains, "I've been using the built-in WiFi

quite a bit. With the Nikon app, I can quickly get images off the camera, do a quick edit on my smartphone and put them online or post to my Instagram account. That has really been a lot of fun for me. Until the D750, I wasn't on Instagram because I don't really spend much time taking pictures with my phone. I'm really enjoying how easily I can share my photos this way."



Visit [nikonusa.com](http://nikonusa.com) to see and learn more about the Nikon D750.

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# Outdoor Photographer

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**Photographer:** Marc Adamus

**Location:** Ogilvie Mountains,  
Yukon, Canada

**Situation:** Marc Adamus creates images to convey the way he feels about a scene. These photographs aren't meant to be seen as literal recordings of the landscape—they're interpretations. In this photo, titled "Into The Flames," Adamus was constrained by image capture technology, so he adapted and overcame those limitations. He explains, "The great mountains of the Far North in Canada's Yukon were photographed during a backpacking trip across the range. This is three exposures blended by hand to create a scene that I feel best represents what I saw there. It was an awesome show!"

In general, no matter how good the camera and lens combination, and no matter how talented the photographer, a picture is a poor substitute for the real thing. Ansel Adams always did his best to convey what he saw on film, but he'd rather have been able to bring the viewer to the scene to see for themselves, if only it had been possible.

Nature photography can be literal—a quest to capture natural history—but it doesn't have to be. Interpretative work like Adamus' "Into The Flames" is evocative and inspiring. We admire the emotional side of Adamus' photography, and this photograph makes a great cover. You can see more of Marc Adamus' photography at [www.marcadamus.com](http://www.marcadamus.com). Also, check out our article, "Next Generation Landscapes," online at [www.outdoorphotographer.com/locations/north-america/next-generation-landscapes.html](http://www.outdoorphotographer.com/locations/north-america/next-generation-landscapes.html).



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Mitch Dobrowner

I don't own any Adams prints, but if I could, the one I'd buy isn't "Moonrise," nor is it the famous image of Half Dome. "Clearing Winter Storm, Yosemite Valley," is the Adams print I'd most want on my walls...it's a photograph that makes me want to be there, at that moment. Some say it's cliché to talk about a how an image should tell a story about the subject. More than telling a story, the photographs that I find most interesting are the ones that make me want to be there to experience that fleeting moment. "Clearing Winter Storm" does that for me.

**T**he appeal of **Ansel Adams'** work hasn't diminished with time. Although some art critics have dismissed Adams as more of a popular culture figure than a true artist, we know better. To dismiss Adams as little more than a product of a time is to fail to recognize the lasting impact he has had on the efforts of conservation around the world, as well as how much of an inspiration he continues to be to photographers everywhere. Pop culture figures fade with time and distance from their specific context; Adams' legacy is still growing.

I don't own any Adams prints, but if I could, the one I'd buy isn't "Moonrise," nor is it the famous image of Half Dome. "Clearing Winter Storm, Yosemite Valley," is the Adams print I'd most want on my walls. It's a combination of technical perfection and the conveyance of both time and place. More than that, it's a photograph that makes me want to be there, at that moment. Some say it's cliché to talk about a how an image should tell a story about the subject. More than telling a story, the nature photographs that I find most interesting are the ones that make me want to be there to experience that fleeting moment. "Clearing Winter Storm" does that for me.

In this issue of *OP*, we have several articles relating to Adams, and how he worked and what you can learn from his approach. We also have an article on modern gear that will help you to achieve Adams-like image quality in your photographs. No doubt that article will spur some readers to volley hate mail in my direction. As a preemptive reply, I say again that to confine Ansel Adams to a large-format,

film-based workflow completely misses his technical approach to photography. It's like saying that the only way to write about life in agricultural California is to do it on a pad with a fountain pen because that's how John Steinbeck wrote. Adams was beholden to a type of camera or a lens or a film emulsion only insofar as it enabled him to achieve his vision. He experimented with different equipment and materials endlessly, and it's eminently clear that if he were working today, he'd be testing and evaluating any and all digital devices that he could. For Adams, the tools were the means to an end, not the end itself.

Photographer **Mitch Dobrowner** is a modern photographer who counts Adams as one of his major influences. In the article "Taken By Storm," you can immediately see how that influence plays into his photography. Dobrowner's beautiful black-and-white landscapes' influence and inspiration, not imitation, are on full display. As a devoted storm chaser, Dobrowner has taken Adams' interplay between the landscape and the sky above in a wholly different direction. Although Dobrowner frequently has to set up, compose, let the decisive action unfold and then take down in just a few minutes, the detail and rich tonality in the prints are what you'd expect to see if one had all day to leisurely adjust the camera for the ideal exposure and composition. Like Adams, Dobrowner knows his equipment completely, and he revitalizes his images. Because of that level of preparation, he creates the kind of photographs you'll see in the article.

Has Ansel Adams and his vast collection of work influenced you? Send me an email and tell me about it. You can reach me at [opeditors@wernerpublishing.com](mailto:opeditors@wernerpublishing.com) or reach out to me on Twitter @OPRobinson.

—Christopher Robinson  
Publisher/Editor





Mitch Dobrowner

# SHOWCASE

## Stone Butterfly

An avid photographer in his early years, Mitch Dobrowner took a hiatus from serious photography to focus on raising a family. In 2005, inspired by his children and his wife, Dobrowner returned to pursue his avocation as a nature photographer. His richly detailed black-and-white landscapes and dramatic storm photos show the influence the work of Ansel Adams has had on him. See more of Dobrowner's work in the article by William A. Sawalich in this issue of *OP*.





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# SHOW CASE

## Montana Sunset

Photographing in and around Montana's Rocky Mountains, David Muench has been using small digital cameras instead of the large-format film cameras that used to be in his pack. In the hands of a craftsman, any camera can produce world-class imagery as Muench shows in this photo, as well as in the images in "The Big Sky" in this issue of *OP*. Beartooth Mountain Range, Mont.  
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## Slot Canyons

Using the new Pentax 645Z, pro nature photographer Kerrick James traveled in the Southwest in late 2014. He took advantage of the medium-format sensor and its ability to capture detail and dynamic range. For some landscape photographers, smaller formats have always been eschewed in favor of the detail that a larger format can render. This image shows why. Pentax 645Z



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## NIKON D5500 ▶

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## MANFROTTO FILTER COLLECTION ►

Manfrotto has expanded their photographic tool offering with the new **Filter Collection**. The **UV Filter**, **Circular Polarizer** and **Protection Filter** are available in three collections—**Essential**, **Advanced** and **Professional**—with varying layers of protection. The blur-, haze- and blue cast-eliminating UV filters are water-repellent, with 8 layers of coating at the Essential level and 12 layers at the Advanced and Professional levels. The Circular Polarizer increases color contrast and saturation, and reduces reflection while maintaining sharpness and color balance. The Essential level utilizes 2 layers of coating while the Advanced and Professional levels utilize 12 layers. The Protective Filter is only available at the 12-layer Professional level, including antistatic layers for ease of cleaning and oil resistance. All filters are available in 52mm, 58mm, 62mm, 67mm, 72mm, 77mm and 82mm sizes, and come with a reusable storage case. List Price: \$24-\$169. **Contact:** Manfrotto, [www.manfrotto.us](http://www.manfrotto.us).



## ◀ SUPER-STRENGTH CAMERA STRAP

For adventure photographers who have strength and durability at the top of their equipment “must-have” lists, the **Variant A4 Strap** by **Vulture Equipment Works** has been designed specifically to handle extreme loads, available for use as a dual-point camera strap, single-point camera sling, and a tool for pulling and lifting lighting equipment and hard cases. With over 70 inches of strap, it easily reaches around heavy coats and parkas. It includes an adjustable military-grade quick-release for any haphazard situations, and includes a safety wire to prevent accidental quick-release activation. The carabiners are mountain-grade. List Price: \$179. **Contact:** Vulture Equipment Works, [www.vultureequipmentworks.com](http://www.vultureequipmentworks.com).

## ARIES BLACKBIRD X10 CAMERA DRONE ►

The **Aries Blackbird X10 camera drone** provides 6-axis gyrostabilization and GPS accuracy for its 16-megapixel still and 1080/30 fps full HD video onboard camera. The weather-protected body integrates a 2.4 GHz WiFi connection for advanced control via an Android/iOS mobile app. The mobile device can be secured directly to the controller, while the app allows you to dictate start/stop video recording, still shooting, lens field of view and more. The Aries Repeater (shipped with the Blackbird X10) increases the WiFi communication distance up to 1,000 feet, when needed. The ergonomic grip controls climb, descent, roll and pitch. If there's a loss of control, the GPS-guided system hovers, maintaining height and position. If the transmitter signal is lost, the automatic Flight Control system pilots the quadcopter to a safe height and lands safely at its starting point. The easily accessible 5300 mAh lithium battery system provides 25 minutes of flight time on a single charge with audio and visual alerts when the battery is running low. Estimated Street Price: \$799. **Contact:** Adorama, [www.adorama.com](http://www.adorama.com).





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## ► FUJIFILM FX 16-55mm F/2.8 R LM WR

Fujifilm's new wide-angle to portrait-length lens is built to withstand harsh conditions. At a 24-84mm equivalent length for a 35mm camera, the **XF 16-55mm f/2.8 R LM WR** is compatible with all X-mount mirrorless cameras. With 14 weather seals against moisture and dust, the lens can withstand temperatures as low as 14° F. Seventeen lens elements are distributed in 12 groups, with 3 extra low dispersion elements for controlling chromatic aberration and 3 aspherical elements to reduce distortion through zoom. A Nano-GI coating is used to minimize surface reflections and prevent lens flares and ghosting. Its Twin Linear Motor autofocus system is quick and near-silent, which is particularly useful for video work. Estimated Street Price: \$1,999.

**Contact:** Fujifilm, [www.fujifilmusa.com](http://www.fujifilmusa.com).



## ◄ MIRRORLESS TELEPHOTO

Olympus has announced the first telephoto lens for the M.Zuiko PRO series, the **ED 40-150mm f/2.8 PRO**. At just over six inches long, the lens is both portable and versatile, with an equivalent 35mm range of 80-300mm. Utilizing a Dual Linear Voice Coil Motor, the lens powers two high-grade lens elements, allowing quick and quiet focusing in a dust-, splash- and freeze-proof body. The lens also includes a dedicated function button, manual focus clutch and a 20-inch minimum focal distance. Estimated Street Price: \$1,499.

**Contact:** Olympus, [www.getolympus.com](http://www.getolympus.com).

## ► RUGGED HARD DRIVE

Travel photographers will want to take note of the new rugged drive solutions offered by **G-Technology**. The **G-DRIVE ev RaW with Rugged Bumper** is a USB 3.0 bus-powered drive. Not only is it 35% lighter than the original G-DRIVE ev, the 1 TB capacity drive can survive a 1.5-meter drop. G-Technology has also developed an all-terrain case (ATC). Removable and compatible with the Evolution Series G-DRIVE ev or G-DRIVE ev SSD, it can be purchased with the G-DRIVE ev RaW drive, as well. When tethered to the removable drive, the ATC case protects the drive from drops of up to 2 meters and has a watertight compartment, which ensures the drive floats when dropped in water. The case additionally protects from pressure, shock, water and dust. List Price: \$229 (G-DRIVE ev ATC with Thunderbolt 1 TB); \$179 (G-DRIVE ev ATC with USB 3.0 1 TB); \$129 (ATC with Thunderbolt); \$79 (ATC with USB 3.0). **Contact:** G-Technology, [www.g-technology.com](http://www.g-technology.com).







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[www.petzl.com](http://www.petzl.com)



## SONY ACTION CAM ▶

Sony has stepped into the ring with GoPro, announcing its own POV 4K action cam. The compact **FDR-X1000V** shoots 4K for playback on a 4K TV through HDMI, full HD video at 120p and standard HD at 240p to capture slow-motion shots. The Zeiss Tessar lens has an ultrawide 170° field of view. The camera also features a back-illuminated Exmor R CMOS sensor and BIONZ X processor. Updated SteadyShot technology with electronic image stabilization provides vibration-free footage for quick action and aerial shots. The FDR-X1000V has added wind noise reduction to decrease interference with the stereo microphone. Manual controls include white balance, auto-exposure shifting, loop recording and burst still image shooting. The camera is also compatible with the Ustream platform. An RM-LVR2 LCD Live View Remote is waterproof down to 10 feet for frame check, record start/stop, playback and file deletion. A Highlight Movie Maker feature automatically edits together a short MP4 highlight reel for quick sharing. The official Sony Action Cam app will be released in Spring 2015. List Price: \$500 (with waterproof case); \$600 (with waterproof case and RM-LVR2). **Contact:** Sony, store.sony.com.



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Photography**

## ◀ TRAVEL PHOTOGRAPHY COURSE

The New York Institute of Photography has launched several new online photography learning courses. The **Travel Photography Course** covers topics such as what gear is needed for different types of trips, technique for landscape, nature, wildlife, portrait and architecture photography, as well as business skills and portfolio creation. The course is built for photographers of all levels via the NYIP online learning platform, where you can learn at your own pace. Each student is paired with a professional mentor for individual skill development. List Price: \$999 (discounts applied when paid in full at time of enrollment). **Contact:** NYIP, (800) 583-1736, www.nyip.edu.

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### ZENELLI PLUS GIMBAL HEAD ▶

The **Zenelli Plus Gimbal Head** is both lightweight and secure. The carbon-fiber body is hollow to absorb click vibration and offers 360° panoramic and horizontal axis rotation. The Save Lens Lever protects lens balance and prevents the lens from falling against the tripod while changing cameras or adding a teleconverter. The Quick Release Lever offers quick and safe slide adjustment. The gimbal also utilizes tilt lock, a pan pull-out lever and leveling bubble. Now available at B&H. List Price: \$1,125.

**Contact:** Shoot The Light/Charles Glatzer, [stlonlinestore.net](http://stlonlinestore.net).



### ◀ MULE GOPRO MOUNT

The **Mule GoPro mount** tagline—"One is good. Mule is better."—alludes to the Mule's finesse in mounting two GoPro cameras using one slim tool. Compatible with GoPro third-party mounts and GoPro pivot arms, two cameras can be positioned at different angles in multiple directions, providing integrated footage for fluid editing and continuous storytelling. The Mule can be set up on scuba equipment, surfboards, race cars, zip lines or even used handheld. List Price: \$19. **Contact:** Mule Mfg., [mulemfg.com](http://mulemfg.com).

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## HAVANA SHOULDER BAG ▼

The slim profile and 600D polyester exterior of the **Havana 36 shoulder bag** by **Vanguard** helps you navigate your gear through city streets while also protecting it on sandy beaches. The removable interior holds one DSLR with lens attached, one to two additional lenses and one strobe. An integrated interior storage pocket for a 9-inch tablet or an 11-inch ultrabook is also provided, along with interior space for additional accessories including a



water bottle, an umbrella, charging cables, a notebook and personal items.

The Havana 36 also includes dual memory card pockets and front and back zippered pockets. List Price: \$69.

**Contact:** Vanguard, [www.vanguardworld.com](http://www.vanguardworld.com).

## LEXAR MICROSD UHS-II ►

While compatible with tablets and smartphones, photographers most likely will be interested in **Lexar's Professional 1000x microSD UHS-II** for its use with quadcopters. Available in 32 GB, 64 GB and 128 GB capacities, the microSD cards capture, play and transfer 1080p full HD video, as well as 3D and 4K footage. The card is fully backward-compatible with UHS-I cameras and non-UHS-I devices, so any user still can take advantage of the 150 MB per second read transfer speed of the UHS-II technology when paired with the included USB 3.0 reader. A lifetime copy of Image Rescue software is included for recovery of lost or deleted files. List

Price: \$59 (32 GB); \$109 (64 GB); \$189 (128 GB). **Contact:** Lexar, [www.lexar.com](http://www.lexar.com).



## ◀ SEAGATE SEVEN

**Seagate** chose the name **Seven** for its ultraportable **500 GB hard drive** because of its incredibly slender 7mm thickness. But don't let slim make you think unprotected. The 100% stainless-steel enclosure safeguards data from drops and shock. The drive is bus-powered and connected through a single micro USB 3.0. List Price: \$99. **Contact:** Seagate, [www.seagate.com](http://www.seagate.com).





### ◀ TRAVERSE TRIPOD

Davis & Sanford has added the new **Traverse TR654C-36 Tripod and Ballhead** to the line.

The tripod has a unique Reverse Folding feature, which folds down to 18.5 inches while having a maximum height of 65 inches.

Made of carbon fiber, the four-section tripod and ballhead weigh only 3.25 pounds. Foam grip cushioned insulated legs can be adjusted to three independent leg angles and variable lengths with quick-twist leg locks. Rubber feet can be transformed to spikes for stable outdoor shooting. The center post has a hook for hanging equipment or weights. It can also be separated and used for ground shooting. Padded tripod bag included. Estimated Street Price: \$169. **Contact:** Tiffen, [www.tiffen.com](http://www.tiffen.com).



### ▲ HOUSE OF CARDS

Keep all varieties of cards safe with the **House of Cards** by MindShift Gear. The card organizer holds 6 CF cards, 3 SD cards and provides a built-in business card holder. Orange elastic bands ensure cards stay securely in place while giving silent access when needed. Clear windows let you easily differentiate cards from one another. The Tahoe Blue organizer color makes it stand out in a filled pack, while the removable tether clip can attach the House of Cards to the outside of a bag, your belt or clothing for quick card access. The exterior is water-resistant. List Price: \$19. **Contact:** MindShift Gear, [www.mindshiftgear.com](http://www.mindshiftgear.com).



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# What's The Best?

Lens Selection: Con\$umer Or Profe\$\$ional? • Confidence In Your Equipment • Investing In Quality Printing

[ By George D. Lepp With Kathryn Vincent Lepp ]

## Lens Selection: Con\$umer Or Profe\$\$ional?

**Q** Do you, as a pro, always buy the best lens available, or can you work with some of the less expensive optics?

B. Dalton  
San Francisco, California

**A** If photography is your business, then you need to make investments in equipment that meet your needs and are cost-efficient, just like any other businessperson. Photographers who are under contract to one or another manufacturer, as I am with Canon, may need to use the latest gear to produce images relevant to the sponsor's needs, but that's another issue. I typically work with a mixed arsenal of professional and consumer-level lenses. But the real answer to your question is another question: It all depends on what you're really trying to accomplish with your photography.

Most manufacturers offer more than one level of lens quality. As an example, Canon and Nikon both market "kit" lenses (these are the basics, packaged with the camera body), consumer lenses and professional-level (read "expensive") lenses, the Canon L series and the Nikon ED series. The main advantages of high-end optics are greater light-gathering capability, improved sharpness overall and to the edges, and better-quality finishing, which manifests in water- and dust-resistance and sometimes speed of autofocus.

We all want the sharpest optics possible, but what do you need, and more importantly, what can you afford? I'm seeing a lot of great new optics out there from Canon, Nikon, Sigma, Tamron and Zeiss, to name but a few manufacturers. We need high-level optics to complete the promise of high-resolution sensors, now climbing upwards of 30 megapixels. But I also see photographers obsessing over high-end optics with pretty steep prices when they use their images in low-res ways: posting to Instagram and



**Ice Formations.** This Arctic landscape of giant ice boulders is actually a small formation. Lepp achieved extraordinary detail and resolution from a consumer-level camera and lens combination, the Canon EOS 7D Mark II with the EF-S 18-135mm f/3.5-5.6 IS STM lens set to 93mm. The exposures for 18 focus-stacked images composited in Zerene Stacker were 1/10 sec. at f/11, ISO 200.

Facebook, publishing to Internet sites, making an occasional print no larger than 13x19 or even appearing in a magazine (standard maximum of 8.5x11).

Consumer-level lenses today are better than the best optics we had only a few years ago when film was the only medium. I just purchased a Canon EOS 7D Mark II with the kit lens EF-S 18-135mm f/3.5-5.6 IS STM attached, and I've used it on several assignments. This is the equivalent of a 28-216mm zoom on a full-frame sensor. No, it's not an L lens, but it works very well, and I could publish the images from it on the cover of this magazine any day. Take into consideration that many of our consumer DSLR cameras are either 4/3 or APS-C; they crop the image circle of the lens by 1.5x, 1.6x or more to eliminate a possible falloff of sharpness at the edges, thus not taking full advantage of all of the benefits of the high-end

lens. These cameras can achieve excellent results with consumer-level lenses, and there are a lot of focal lengths available in this category.

If you're working with full-frame high-resolution sensors (such as those found in the Canon EOS 5D Mark III and 1D X, the Nikon

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### tech tips

D810 and D4S, and the Sony a7R) and you want to put all their capabilities to use in capturing images intended for high-res captures and very large prints, then you'll need to consider investing in lenses that are up to the task. These are, among others, the Canon L, Nikon ED, Sigma DG and Zeiss Touit. If you want or need the best, and can afford it, then look at these fantastic tools. Your clients may demand the sharpest image possible (even though they publish at 8.5x11 inches like all the other magazines).

If you make very large prints in the 30x40 and larger size, you'll want to use the best available equipment so you'll know that the limiting factor in quality images is you! But whether amateur or pro, I'd rather see photographers working with the range of tools they need to achieve their creative visions than to have only one or two of the expensive top-performing lenses that they can't use to the fullest. Then there are those who just want the best, and can afford to own it all, and who am I to argue with that?

### Confidence In Your Equipment

***Q** I'm having trouble getting sharp images from a telephoto zoom that I recently purchased. How do I determine whether the problem is a bum lens or my own technique?*

*B. Arnett*

*Via email*

**A** We want our new stuff to be awesome right out of the box, but you're wise to at least entertain the possibility that malfunction lies in the hands of the photographer. Yes, I've had a couple of bad lenses over more than 40 years of using a variety of camera systems, but in most instances, after some testing, I've found that the limiting factor was me and not the gear. I remember a particular telephoto lens that I was sure wasn't sharp. Time and again, I'd come back from a shoot and not be happy with the results. I finally slowed down, put the lens on a tripod and photographed a static subject with fine detail, and there they were, tack-sharp images! The problem was clearly my casual use of a long lens, thinking I could handhold it at lower shutter speeds. It hurt my pride a bit, but once I adjusted my technique, I was very happy with the optic.

But assuming that you're using metic-

ulous technique and properly setting up the camera and lens combination, here's a testing process you can apply to evaluate the sharpness of your new lens.

First, check to see that the camera's autofocus is working properly in combination with the lens. Many of the newer camera bodies have the capability of calibrating the camera's autofocus to a particular lens. While the focus in the viewfinder may look perfect, the autofocus may be positioned in front of or behind your subject, which may be evident when you review your images. Whenever I add a new lens to my collection, I first calibrate it to the camera by using a lens calibration tool, a fancy title for an angled paper target that, when photographed, reveals the exact position of the autofocus and what micro-adjustments, if any, need to be made within the camera's settings to achieve perfection. Three good options are the Datacolor SpyderLENSCAL, the LensAlign MkII Focus Calibration System and the Focus Pyramid Autofocus Lens Calibration Tool.

If the AF calibration doesn't immediately reveal the problem, then take the time to set up a thorough test situation by eliminating human and environmental variables that could compromise the lens' performance. These include camera settings, camera movement, missed focus, internal camera vibrations and subject movement.

**1** Set up a target. Lens charts are available online, or simply use a double sheet of newspaper taped to a wall. (This gives you an actual use for the Classified sections, which contain the most detail.)

**2** Mount the camera/lens combination on a sturdy tripod and position it so that the target is parallel to the camera's sensor and centered in the frame. To eliminate vibrations internal to the camera, use a mirror lock-up mode or, preferably, if your camera has it, Live View mode, which automatically locks up the mirror. To avoid touching the camera at capture, fire the camera with a cable release or remote.

**3** If you have Live View capability, you can set the focus on the target by magnifying the image on the LCD screen and use a loupe to achieve precision. Otherwise, focus the camera initially using the autofocus capability of the camera/lens (that you've previously calibrated).

**4** Photograph the target with proper exposure at different *f*-stops and a low ISO (100-200) for best quality.



Expect to see the best quality from the lens at two *f*-stops smaller than the widest opening. For example, an *f*/4 lens would be sharpest at *f*/8.

**5** Evaluate your images on the computer monitor to determine whether to send the lens back to the manufacturer or work harder on your technique.

### Investing In Quality Printing

**Q** *I'm interested in having digital shots made into prints suitable for framing and hanging. I don't have a color monitor other than the screen on my MacBook Pro. I've sent images to one printer and the prints came back a half- to full stop darker than I expected. I'm reading blogs that tell me to purchase a quality monitor and to calibrate it for accurate color and dark/light tones in the files I send to the printer, but I'm reluctant to spend \$1,000 for a monitor I won't use much. Is there another way?*

T. McGraw  
Via email

**A** Even if you have a calibrated monitor, you can't be sure it will match with the printer's setup; and, of course, different media (canvas, paper varieties, metal) can produce vastly different color results. You'll need to work with a printer who gets more involved in the work and is eager to be sure the print you get is the one you wanted. This probably will cost more, but not as much as a complete monitor and printing system of your own, complete with paper, ink and maintenance costs. Working from proofs is labor- and time-intensive, but yields verifiable results. You send the printer a file and they send you a piece of the image as a proof. You then request any color and tone adjustments, and they send a new proof. Usually, you can get it perfect in a couple of rounds. One printer you can work with online or in person is Fine Print Imaging in Fort Collins, Colorado. Go to [www.fineprintimaging.com](http://www.fineprintimaging.com) for both online express and custom ordering. **OP**

**Editor's Note:** George Lepp's colleague Robert Agli should have been credited for the photograph of Lepp working with the CamRanger that appeared on page 40 of the December 2014 issue. OP regrets the error. See **George Lepp's** website for upcoming workshops and seminars at [www.GeorgeLeppImages.com](http://www.GeorgeLeppImages.com).

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# [ FAVORITE PLACES ]

Text & Photography By David Shield



## SOL DUC SPRINGS

Olympic National Park, Washington

### Location

Sol Duc Valley is located inside Olympic National Park, Washington State. The lush green valley is situated in the northwestern region of the park, 40 minutes west of Port Angeles. Accessible by turning off Highway 101 onto Sol

Duc Road, the Sol Duc River is fed by numerous mountain streams that run through this area, which also includes a pristine old-growth forest and subalpine lakes, as well as views of the park's snow-covered peaks. From the parking lot, a one-mile trail winds through an enchanted forest to popular Sol Duc Falls, where visitors can stand on a bridge and gaze down to a waterfall that cascades over rocks before plunging into the river. Along the way, there are many places to stop and be mesmerized by the rushing water as it meanders through the forest tumbling over moss-covered

rocks. The Sol Duc Campground is open year-round and is conveniently located right inside the old-growth forest alongside the river. Lodging is also available at Sol Duc Hot Springs Resort, with charming rustic cabins and access to the hot mineral spring pools.

### Weather

Due to the park's amazing variety of scenery, which includes mountains, forest and miles of coastline, it's possible to experience every kind of weather here. Although it can rain at anytime during the year, the park is known for a drier season and a rainy season, which typically begins around November and lasts until early spring. Winter storms are also possible in this area of the park and can result in the temporary closure of Sol Duc Road.

### Photo Experience

I still love shooting film, and Fujichrome Velvia is my film of choice because of the image clarity and rich vibrant color it's capable of producing. Exposures of one second or more are great for capturing the peace and tranquility of the forest. For this, a tripod is an absolute necessity. I also use a cable release, eliminating the need to use the camera's shutter and further reducing the risk of camera movement during exposure. Attaching a polarizer to my lens not only minimizes reflections in the water, but can also increase exposure time, making it possible to give the water a dreamy effect as it flows through the forest. With overcast conditions in much of the park's interior, existing soft light makes the old-growth forest ideal to photograph. The lack of harsh sunlight makes it easier to capture an evenly exposed image. For such grand scenery, I use a Pentax medium-format camera and

Pentax 45mm *f*/2.8. With a 35mm-format-equivalent field of view of about 35mm, this lens can incorporate all the elements that draw me to this area in a single composition.

### Best Times

With such diverse scenery within its boundaries, the park offers many photo ops year-round. However, my favorite time to visit the Sol Duc Valley is between spring and early summer when conditions are favorable for rushing waterfalls and vibrant forest greens. By late summer, the waterfalls in this area have usually lost momentum and the moss that covers rocks in the river and its tributaries has aged into a dull shade of yellow.

**Contact:** Olympic National Park, [www.nps.gov/olym/index.htm](http://www.nps.gov/olym/index.htm). **OP**



## Essential Gear...

Shutter and remote releases are incredibly useful tools for gaining the ultimate in sharpness. Releasing the shutter without touching the camera eliminates any handheld camera shake, which will show up as subtle vibrations in an image, even when using a tripod. A higher-end remote release can provide several other advantages, as well. The advanced **Hähnel Giga T Pro II**, for example, adds wireless controls, channel selection for use with multiple cameras, and a timer that will allow fully programmable intervals and exposure lengths for working with time-lapse and nighttime photography. **Contact:** Hähnel, [www.hahnel.ie](http://www.hahnel.ie).

ABOVE: Hähnel Giga T Pro II



### WASHINGTON

Sol Duc Springs,  
Olympic  
National Park

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## Variations On A Theme

Sometimes, your first inclination isn't the only possibility

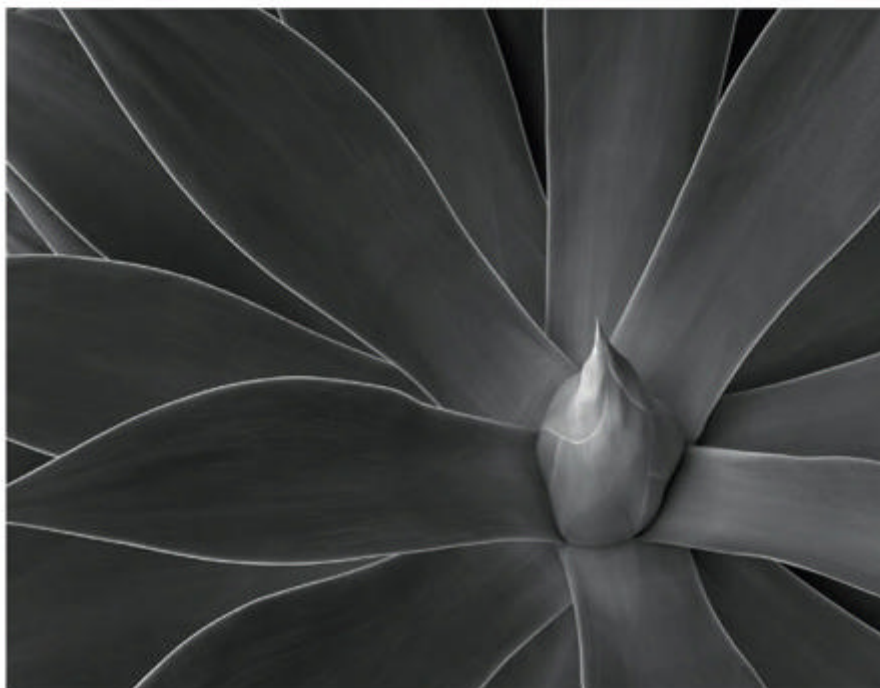
[ By William Neill ]



*William Neill made this photograph, "Agave Attenuata, Island of Maui, Hawaii," in 1994. It's a 4x5 film image. Since that time, it has been scanned to a digital file, and Neill has experimented with variations. Technology makes it easy to match images to your evolving creative vision.*

**T**he art of photography is about interpretation. What's right and what's wrong? You, the artist, get to decide. Listening to Ansel Adams' lectures in my youth, and seeing the creative renditions he made from his negatives to the final prints, I learned that I need not adhere to a literal expression of my subjects.

From this lesson, I try not to be dogmatic about how I compose and process my images. I listen to my inner voice about whether my photographs reflect what I saw and felt. I steer clear of rules and norms as much as possible. I may end up creating an image that has a standard tonal range or compositional



### ► MORE On The Web

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balance, but I'm not locked into that.

My photograph shown here was made in Hawaii with a 4x5 view camera and film in 1994. Years later, I scanned the transparency and, on my computer screen, "played" with the file first starting

with a color version. My goal was to convey the subtle variations of the green in the leaves, but also to bring out the bright edges to heighten their graphic lines.

My next step was to convert the photograph to black-and-white given the

classic graphic nature of the subject. Strongly influenced by one of Adams' former assistants Don Worth ([www.photographywest.com/pages/worth\\_photos.html](http://www.photographywest.com/pages/worth_photos.html)), I took the tonalities in two different directions. Usually, when I explore such divergent interpretations, one of them jumps out as the best option. In this case, I love all three directions.

In both black-and-white photographs, I've created high-key and low-key versions by pushing the tones up or down. The low-key one shows the curve on the left side of the image's histogram emphasizing the dark grays, while the high-key image's tonal range is on the right side of the histogram.

Will you come up with three variations for most of your images? No. Will most landscape and nature photographs work best with a full range of tones? Yes. My advice is simply not to limit yourself creatively. **OP**

To learn about **William Neill's** one-on-one Yosemite workshops, ebooks and iPad app, and to see his latest images, visit his website and photo-blog at [www.williamneill.com](http://www.williamneill.com).

## Power When You Need It

The PowerPal provides photographers with backup power for recharging DSLR camera batteries and other 5V USB-charged devices in all situations where an AC power source is not available. It is a great tool for photographers on the move and working in remote environments.

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# THE AMERICAN



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Photo by Bill Shupp  
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## A Picture... 50 Years In The Making



The year was 1964, and Ansel Adams was seated directly across from me at the dining table. Our group had finished eating and was well into the third hour of wonderful conversation. Topics included psychology, art, music and photography.

I was in my first year of college. As president of our college photo club, I was responsible for organizing the photo department's annual arts and culture program. Through hard work, help from numerous friends and lots of luck, I managed to book Ansel as our speaker.

The day of the big show arrived, and the foyer reception area was packed with hundreds of visitors gathered to meet Mr. Adams and get up close and personal with 20 of his finest original prints. The main presentation was Ansel narrating a slideshow of his work. The matinee was a tremendous success and the auditorium was sold out. A bit of humor mixed with photo history and his breathtaking images projected onto a huge screen made for a memorable afternoon.

After the presentation, I met Ansel, our department head and three others at a restaurant. A circular dining table in a private room was an ideal setting. Here, Ansel told us about his love for the Eastern Sierra. He said, "Big Pine, the Alabama Hills, Manzanar, Whitney Portal and all along the Owens Valley hold wonderful opportunities for a photographer."

Within two months, I joined three of my classmates and we were headed up Highway 395 and into the Owens Valley. In Big Pine, we pulled over at a rest area and met a forest ranger updating fliers at the kiosk. When we told him what we were up to, he said, "For some great pictures, you need to head up this road [Highway 168] 18 miles to see the ancient bristlecone pine trees. At over 4,000 years old, they're the oldest living things on the planet."

We all managed to get some good pictures on that trip. My favorite was a bristlecone that resembled a huge candelabra. The composition was beautiful and, in the distance, you could see the Sierra and the three southernmost glaciers in North America. As much as I liked shooting black-and-white, this was one time I wished I had a holder loaded with color film. I made a promise to myself that one day I would return and photograph that tree in color.

In summer 2014, almost 50 years to the day, I fulfilled that promise. I put my Horseman VH 6x9 field camera in my backpack, loaded a roll-film holder

with Velvia 50, grabbed the Manfrotto tripod and headed for the White Mountains. I brought my black-and-white contact print. If I found the tree, I wanted to match the original composition.

I arrived at the Schulman Grove Visitor Center in late afternoon. As luck would have it, the center closed early that day. Three trails start at the main parking lot, and since it was late, I picked the shortest and easiest one. The Discovery Trail is a one-mile loop and probably takes the average hiker an hour to complete.

After two hours of all uphill climbing, I was probably just past the halfway point, and the light was fading fast. Keep in mind that the elevation was over 10,000 feet and I'm almost 70. I could only go about 50 yards at a time and had to stop, have a sip of water and catch my breath. But I was on a mission.

Eventually, the trail started to descend. With my headlamp lighting the way, I rounded a bend, and there it was. Up the hill, just a short distance to my left, was that magnificent candelabra silhouetted against the night sky. The stars were brilliant and the moon was bright.

I made it safely back to my car where I spent a sleepless night thinking about what the morning would bring. For the best light, I knew I'd have to be on the trail before sunup.

The morning light was beautiful when I arrived at my tree. I immediately got to work comparing the black-and-white print to the scene in front of me. When I thought I had the perfect spot, I started setting up. Prior to making an exposure, I did a critical focus on the ground glass, adjusted the polarizing filter and swapped the ground glass for the 120 roll-film back.

I did a test shot with my Canon PowerShot SX50 HS digital. It's equipped with the same filter I use on the Horseman, and it makes the perfect light meter. With the SX50 set at ISO 100 and the polarizer properly positioned, the best exposure was  $f/8$  at  $1/60$  sec. So my starting point on the Nikkor-W was  $f/8$  at  $1/60$  sec. using ISO 50 film. From that point, I stopped down to  $f/16$  (the best  $f$ -stop for this lens) and set the shutter to  $1/6$  sec.

Fulfilling my promise to return and photograph this tree was a rewarding experience.

My photo buddies say I must be the world's greatest procrastinator.

OP







# A S S I G N M E N T S

►► Winning Images From The Weekly Assignments At [outdoorphotographer.com](http://outdoorphotographer.com)



In this issue, we're featuring the winners of our late autumn and early winter Assignments. Congratulations to Kevin King, Harry Lichtman and Kevin Russell for their winning submissions. A new Assignment is posted every week

at [outdoorphotographer.com](http://outdoorphotographer.com). To get your images into the running, all you have to do is submit. Sign up for our eNewsletters to get updates, and if you have an idea for an Assignment topic, you can find me on Twitter @OPRobinson.





### 1) First Snowfall Assignment Winner

PHOTOGRAPHER: Harry Lichtman

EQUIPMENT: Canon EOS 5D Mark II, Canon EF 100-400mm f/4.5-5.6L IS, Gitzo Tripod

Finding the combination of vibrant fall foliage and snow seems to be more unpredictable in New Hampshire than out West. Often, the leaves in New Hampshire's White Mountains have browned or fallen by the time of the first snow. On this occasion, I was in a great place for the season's first snow and used the harsh conditions to my advantage. The wind and blowing snow limited me to this type of image, but it was a refreshing change for me from the standard wide-angle shots so tempting in fall foliage landscapes under clear conditions. The sun was occasionally reaching the trees through the clouds, so I tried to find a location perpendicular to the blowing snow that would allow some side- or backlighting of the trees and snow. In this way, the snow would be more prominent in the image.

After some hiking, I settled on this composition. Finding a suitable mix of colorful trees and darker evergreens that would be backlit was harder than it might seem. The darker trees were best at contrasting the blowing snow and made it more visible in the image. I experimented with various shutter speeds to create the streaking effect of the snow. I tried to find a balanced grouping of trees, and used the color and textural contrast to create a visually dynamic scene.

### 2) Winter Quiet Assignment Winner

PHOTOGRAPHER: Kevin Russell

EQUIPMENT: Nikon D7000, Sigma 10-20mm f/4-5.6 EX DC HSM lens, Manfrotto tripod

I have a friend that lives a little closer to Tipsoo Lake at Mount Rainier National Park. He mentioned he was going up there to shoot stars and asked if I'd like to join in. I'm glad I went along and grateful he asked. It was a balmy 20 degrees out, but we had fun shooting various compositions under the stars at upper and lower Tipsoo Lakes that night. This was taken while straddling a small stream that feeds into the lake. This location is shot frequently by photographers, and I usually avoid places like that, but I'm happy I walked away with something unique from there. And I'm pretty sure I'll be back during better weather.

As for processing, I combined two of the same images shot at different settings. For the sky, I used an image that was shot at 30 secs., f/4, ISO 3200, 10mm. For the rest, I used the image shot at 4.5 minutes, f/4, ISO 400, 10mm. I blended the two with a layers mask. I get a cleaner, less noisy foreground by taking the image twice at different settings and blending.

### 3) Autumn Sunset Assignment Winner

PHOTOGRAPHER: Kevin King

EQUIPMENT: Nikon D800E, Nikkor 16-35mm f/4 lens, Gitzo 3541LS Carbon Fiber tripod, Really Right Stuff BH-55 ballhead  
Lindy Point overlook at the Blackwater Falls State Park, WV, is well known as a good location for sunset shots. I had visited this spot on several previous occasions and had always been skunked with clear skies and poor light. When I pulled up to the parking lot this particular fall evening, I was afraid I wouldn't get a spot to set up as the lot was overflowing. It turns out that Joseph Rossbach was conducting a workshop that day, and his group was already there when I arrived.

Fortunately, the spot where I was looking to set up necessitates a jump over a small chasm, which generally discourages most people and, sure enough, even though the main overlook area was crowded with people, there was no one in the spot that I wanted. I set up and was soon rewarded with the best light that I had ever seen here. The combination of the autumn foliage and colorful skies made for a great evening; you could feel the excitement as the skies continually changed colors as the sun set. It was a great evening, and I was fortunate to be able to capture a small portion of it with the camera.



2



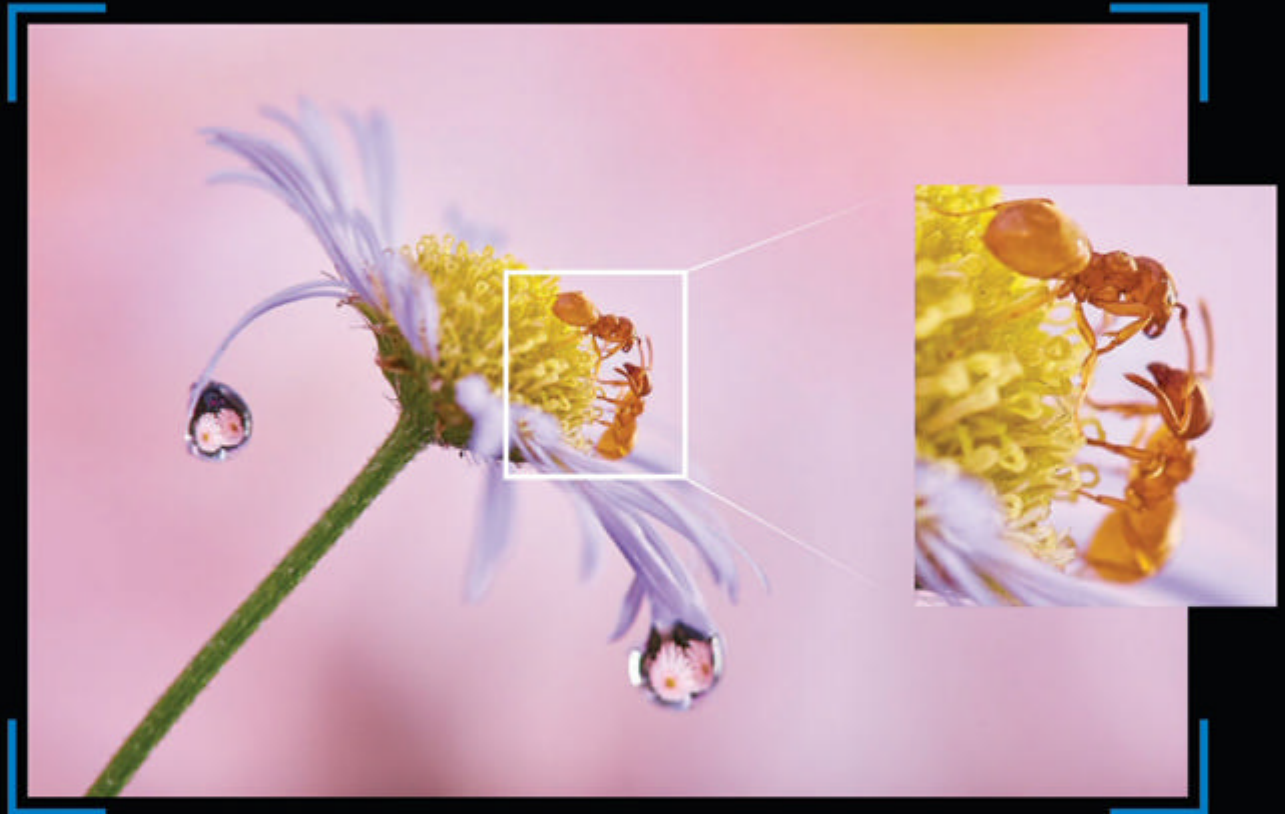
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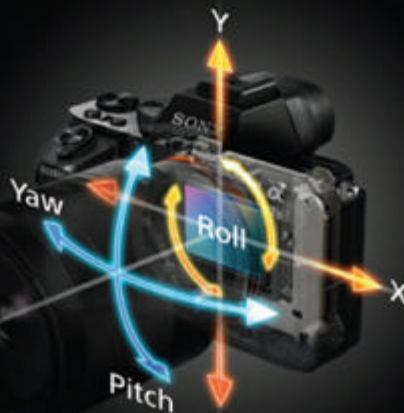
# FREEDOM



**With built-in 5-Axis Stabilization, the remarkable full-frame Sony  $\alpha 7$  II makes every mountable lens in your arsenal a stabilized lens to let you chase down the subject rather than your tripod**

Image stabilization has empowered more nature photographers to get sharp, inspiring photos by freeing us from the bulky tether of a tripod. In the full-frame  $\alpha 7$  II, Sony has taken stabilization to the next level with the most advanced technology currently available, a revolutionary 5-Axis Stabilization system.

In the field, photo opportunities like the one in this macro photo are fleeting. These ants didn't pause and wait for their close-up. Being able to work handheld and adjust your position to follow the action is critical, especially with macro subjects like this. But it's no good if the image is blurry. The 5-Axis Stabilization system built into the Sony  $\alpha 7$  II gives you the freedom to move and shoot handheld at shutter speeds that would have been impossible without it. The system accounts for horizontal and vertical shift, as well as roll, pitch and yaw movements. The full-frame  $\alpha 7$  II image sensor physically moves to



counteract camera shake and keep these ants and the flower tack sharp. And because 5-Axis Stabilization is built into the camera, any lens that's mountable to the  $\alpha 7$  II is stabilized\*.

The  $\alpha 7$  line of full-frame, interchangeable-lens mirrorless cameras have captured the imagination of photographers everywhere. In addition to in-camera 5-Axis Stabilization, the  $\alpha 7$  II has the advanced Fast Hybrid AF system that combines phase-detect and contrast-detect technologies with the high-speed BIONZ<sup>®</sup> X processor. It's fast and accurate, and when it has your subject, it won't let go.

In the  $\alpha 7$  II, breathtaking image quality meets unrivaled shooting freedom. The camera is packed with innovation to give you confidence, no matter how big or small your subject is.

\* Compatibility with lenses other than Sony E-mount requires optional adaptors. Function is not guaranteed and may vary by adaptor and lens.



In an age when black-and-white landscape photography is too often considered anachronistic, photographer Mitch Dobrowner literally never wavers from his monochromatic view of the world, as he makes images literally unlike any that have come before. To call him a landscape photographer may be technically accurate, but it doesn't do justice to the one-of-a-kind, jaw-dropping images that have taken a prominent place in his portfolio. Dobrowner is a storm chaser.

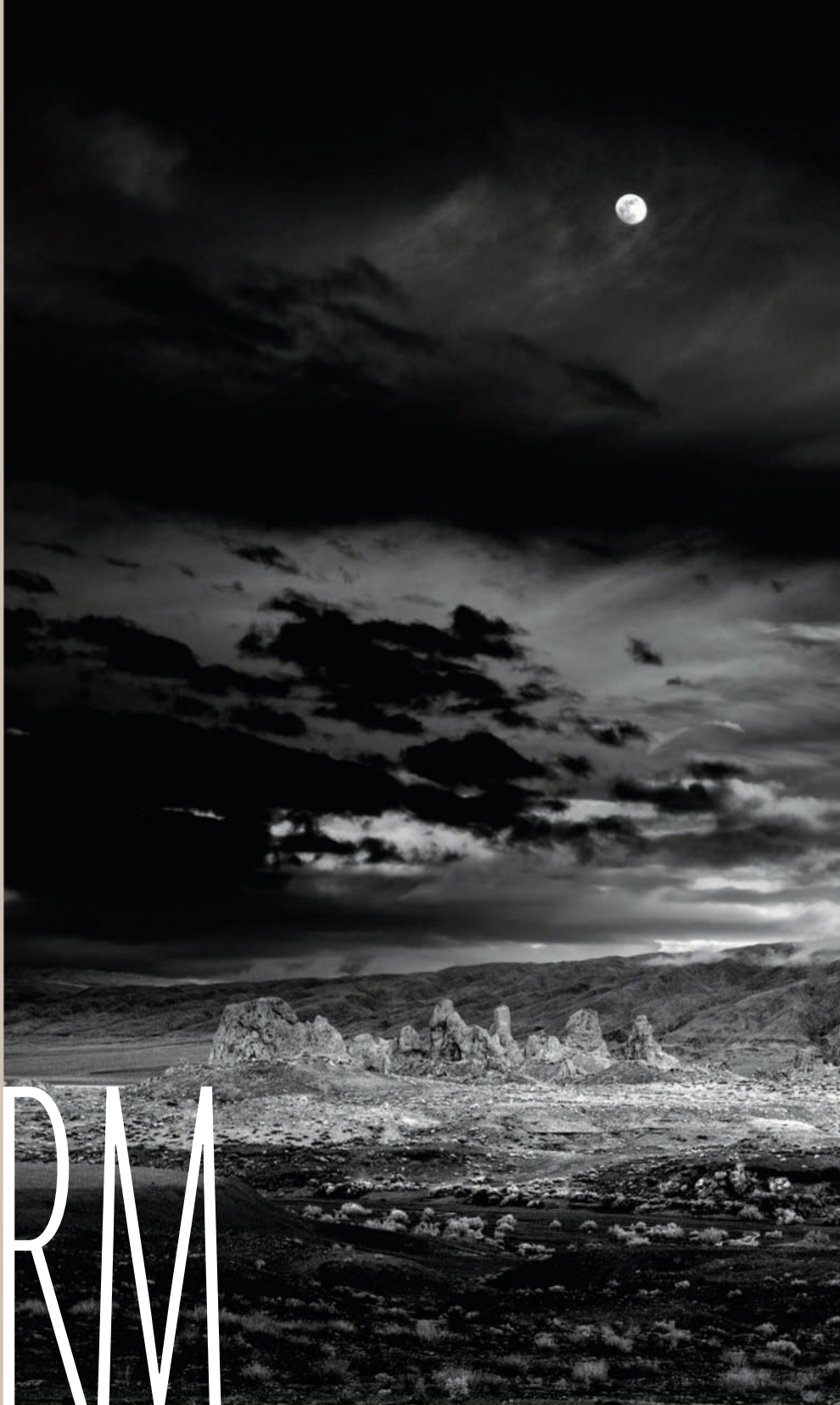
"I always found myself photographing in really inclement weather," he says. "It was just so beautiful to me. In that weather, you never really knew what was going to happen. I would go out to the Southwest in the winter and it just came to my mind that if I'm enjoying this weather... I heard about all the action in Tornado Alley, so I just went out as an experiment. I had no idea what I was going to see. It blew my mind.

"One of my friends hooked me up with a storm chaser," he says, "and I flew out to Rapid City, South Dakota. The first three days I just couldn't believe what I was looking at. That's honest: I couldn't believe what I was looking at. It was like, oh, this is more than

# Taken By STORM

Inspired by Ansel Adams' grand landscapes and bold use of weather, Mitch Dobrowner blends traditional black-and-white skills with digital tools and an affinity for finding the most dramatic weather on earth

BY WILLIAM A. SAWALICH | PHOTOGRAPHY BY MITCH DOBROWNER







an experiment. This is now a project.”

Dobrowner first took up photography in his teens and quickly found inspiration in the work of Ansel Adams, an influence that still shows in his prints today. At 21, he spent four years deliberately emulating Adams, traveling the Southwest and working out of his car

while shooting large-format sheet film. A career change, a family and a couple of decades later, Dobrowner returned to photography in 2005 and has been chasing storms since 2009.

Early training in sensitometry and the inspiration of Adams remain with Dobrowner even today, as he uses a

***Using a pair of Canon EOS 5D Mark II DSLRs with the anti-aliasing filters removed, Mitch Dobrowner is meticulous in all facets of his photography. He never shoots without his camera being firmly anchored on a tripod, and his careful attention yields richly toned, highly detailed images like this. Note the texture in the moon and the dark areas of the foreground.***



Canon DSLR like a view camera. Live View stands in for ground glass, and he filters the lens for total tonal control.

"I haven't pushed the 5D Mark II to its max yet," Dobrowner says. "When I feel like I have, then I'll move on. I came from a 4x5/8x10 background. My bibles were Adams' books *The Camera*, *The Print* and *The Negative*. I really see the sensor acting just like a film plane. With Live View, I can see the direct feed off the sensor. So if I put a red filter in front of it, it gives me a really close idea of how it's affecting what I'm going to capture. I've taken off anti-aliasing filters, and I've done experiments with red filters, blues, greens, polarizers, I've had filters built that are blocking filters—I really just see the camera body as kind of a paintbrush, and I don't want the camera manufacturers to tell me how to paint.

"My final product is really my prints," he says. "Everything technically, for me, is focused on achieving the best prints that I can possibly achieve, and part of that process is the capture. I come from the wet darkroom, and a black-and-white inkjet print at a certain quality is almost harder to achieve than a silver print. They're different, for sure, but there's a whole art to the printing process. The whole thing, from the beginning to the end, for me, it's all part of the process. The drive, the hunt, the capture, looking at it on a laptop in a tent, grading it, printing it, all the way to packing the print—I love the whole process."

In terms of technique, photographing storms is unlike any other form of landscape photography. It is, by definition, a much faster experience than a meditative one. Dobrowner says it's akin to action photography, with mere moments to make a picture.

"Being out in the Southwest," he says of traditional landscapes, "with the wind blow-

***Ansel Adams created drama in the landscape. Dobrowner is a storm chaser who captures the drama in the most violent of weather systems. In these rapidly evolving situations, he has to work fast, obviously, but he also prepares and previsualizes. That lead-up makes the moments of fast work possible. For example, "White Tornado" (below) was one image Dobrowner had been after for a long time. He explains, "I always wanted a picture of a white tornado, and that's difficult, because you have to be in the right position, in the right place, and the lighting has to be right to see a white tornado, otherwise, you'll just see a dark tornado. This was around for a while, on the ground for maybe 20 minutes. I actually have a triptych of it, too. The light has to be shining at a certain angle, with the light behind you, and you have to be on the south side of the storm."***







ing in your face and nobody around, you're watching the lighting and sitting quietly by yourself. I really enjoy that. Storm photography is a lot more like a sporting event because everything is changing, almost second to second. Compositions are changing, lighting is changing. It has really taught me to focus. You can be in front of an amazing storm and you can blow an exposure, blow focus, lose your focus. It has really taught me to extend into a different area.

"It might be five minutes or 20 minutes or three minutes," Dobrowner says. "But the thing is, you always have to think that you're only going to be out there for three minutes. I have to be prepared to work quickly. The composition in front of you right now might

be the best one you're going to get. Or five seconds from now might be the best you're going to get. Or 20 seconds from now."

Unlike the typical landscape photographer who chooses a destination and waits for the light and the weather to convene, the storm photographer must go where the subject is. That may mean covering more ground in a day than most photographers would consider reasonable.

"In the six years I've been going out," Dobrowner says, "we've traveled about 100,000 miles. So a 500-mile trip in one day is nothing. That's about average. When we're really pushing it, we're between 800 and 900 miles a day.





Usually, every year, I go out a couple of times for a long trip. We pick a date and we don't know what the weather is going to be like, but we go. There's always weather. We may start in Rapid City and end up in Amarillo, Texas. We go wherever the weather is. And you don't know what it's going to look like.

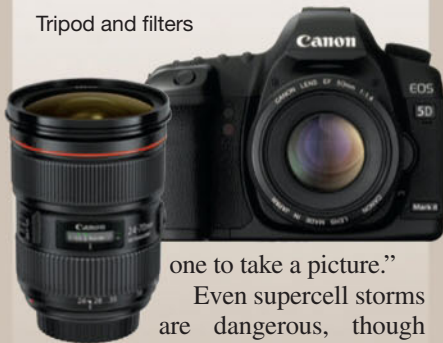
"You don't have a choice," he continues. "If the wall clouds are there at two in the afternoon, you need to be there, whatever the light is like. That's the challenge. Even in my landscapes, before I go, I usually have a picture in mind of what I want to photograph, but if the conditions are very different, the challenge is still to make a good photograph. You don't have control. That's the thing with landscape photography that's so challenging.

"I spend a lot of time just waiting," he adds. "It's discouraging, but it's part of the adventure. The good part with storms is, nobody is going to drop a tripod in the same place where I've dropped

## Mitch Dobrowner's Gear

**Canon EOS 5D Mark II** cameras with anti-aliasing filters removed

**Canon EF 24-70mm f/2.8L II USM**  
Tripod and filters



one to take a picture."

Even supercell storms are dangerous, though Dobrowner says he's not particularly concerned for his safety and that photographing plain old landscapes is actually more dangerous.

"Compared to storms," he says, "landscapes are much more challenging. I just came back from the maze out in Canyonlands, and just getting out there—

the trekking and the hiking, the sweat and the blood and the dangers—I find much more challenging than with storms. With storms, there's always a way to get out of the way, unless you're being very foolish, which I'm trying not to be.

"Everybody is different," he notes. "I'm not trying to be macho, but I don't get scared photographing storms. They're so beautiful; I'm more in awe of what I'm shooting. There's no fear factor, and I'm out with somebody that I know is watching out. That's the main reason I go out with someone else, so I can just stay concentrating on my photograph. I just listen for his voice in case he says we've got to go, now.

"We have a couple of minutes," Dobrowner says of the usual storm. "You see the thing coming toward you and you get out of the way. Sometimes, we can't. There are people who have died, I don't personally know them, but things happen. Things happen in photo-



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Black & Silver

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Full Frame  
Fisheye

14mm f2.8  
Full Frame  
Ultra-Wide

16mm f2.0  
High Speed

24mm f3.5  
Full Frame  
Tilt-Shift

24mm f1.4  
Full Frame

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***Dobrowner is dedicated to black-and-white. Describing his workflow, starting with the color file, he says, “I make an RGB file and just take the saturation and turn it to zero. You get different steps in grayscale; everything you see is an RGB file. The thing I’ve learned with printing, the more you move things around, the more data you’re throwing away. I try to make the RAW conversion to a 16-bit TIFF the best it can be, so I’m not doing much to the 16-bit TIFF. That’s my goal—to do as little pushing and pulling as possible.”***

graphing landscapes, too. You’re hiking at four in the morning, up a 1,000-foot cliff, you misstep once, and you’re off a ledge. You’re out in the dark just to get to a sunrise. Or you’re out for sunset in an extremely remote location, but you have to make it back to base camp in the dark, scaling up and down rocks. There are certain locations that I really want to photograph, they’re not just right off the highway. I can’t pull up the limo and just put my drink down. I find myself hiking up two or three miles, or scrambling down rocks. I love it, but it’s a challenge.”

Dobrowner says he thinks of his storm photographs like his children, each with a personality all its own. He loves them all and he remembers everything about them. Pressed for a favorite, he confesses that he’s proud of the perseverance that resulted in the image of a Shiprock storm.

“I saw the Shiprock picture in my mind before I went out,” he says, “but it took 10 days to get it. It took a lot of energy and taught me a valuable lesson about tenacity. It’s almost like the location eventually says, okay, I believe you’re for real. It’s about understanding the environment. The first couple of days I go out, I usually don’t even photograph because I’m not in touch yet. I haven’t detoxed from Los Angeles yet. It’s almost like if I was a portrait photographer, I’d want to spend some time with you and get to know you, not just knock on your door, take your picture and walk away.

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“I went with my son,” he continues. “We went to Garden of the Gods, the Ridge in Escalante. I just wasn’t happy with what I was getting. People might say they were good pictures, but it wasn’t what I had envisioned. Driving home after 10 days, I wasn’t feeling good about what I had photographed. That’s after all day photographing for 10 days. We pulled off the road for a break, and my son ran up the ridge and called back, ‘Dad, come here!’ I had my camera with me, and that was the picture. It was almost the last picture I shot before we got home. I hadn’t ever really given up. I stayed tenacious. That’s what it takes to get a landscape picture.” OP

See more of **Mitch Dobrowner’s** photography on his website at [www.mitchdobrowner.com](http://www.mitchdobrowner.com).



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How **2** >>

# 7 Deadly Compositional Sins

Forget about adhering to the rules of composition and instead focus on staying clear of the pitfalls of a particular scene or situation

TEXT & PHOTOGRAPHY BY JOSH MILLER

1

**M**ost of us have heard of the “rules” of composition, but how many of us have ever contemplated the “sins” of composition? Despite the fact that many photographers enjoy the technical aspects of the craft, at its roots, photography is no different than painting or drawing. The same fundamentals of art that apply to creating a work with a brush or a pencil also help determine the success of a photograph, and as artists, we all can learn something from a little trip through art history.

Throughout history, there have been many different versions of the “little box that collects light,” and, today, without a doubt, we live in the golden age of these light-collecting boxes. With modern photo gear, photographers can produce work that was considered impossible even five years ago. But while our cameras have advanced to amazing heights, nothing has really changed in terms of what makes a successful image. Fundamentals of art that worked for Leonardo da Vinci while he was painting the “Mona Lisa” in the early 1500s are still very much alive today, even while shooting a camera at 10 frames a second.

When non-photographers look at a successful image, they say things like, “Wow, you must have a great camera!” But did people say, “You must have a great brush, Mr. da Vinci”? If the talent of the painter created the painting, why do people believe it’s the camera and not the photographer that makes the photograph? Alfred Stieglitz, Ansel Adams and Edward Weston all worked during their lifetimes to push the public perception of photography from a skill of merely capturing reality to the craft of interpreting reality and creating “art.”



2



## Poor Camera Placement



### 1 Boring camera placement.

Camera placement is the simplest way to change the overall feel of a photo. We're used to seeing the world from the human eye-level perspective. Thus, placing the camera at a different level or angle creates drama and the photos immediately capture our interest. Imagine how much bigger and more grand a fall aspen grove looks from the viewpoint of a mouse, or how much more dramatic a runner in a landscape looks if the photographer is standing on top of a truck. Putting the camera in an unexpected spot adds excitement to images and makes people stop and look.

With this thought in mind and today's technology to play with, the obvious next step is drone photography, where, for less than the price of many lenses, you can strap a camera on a remote-controlled quadcopter and get shots from the bird's-eye perspective. The sky is literally the limit!

## Good Camera Placement



Simple, Clean View



Cluttered, Distracted View

**2 Overcomplicating the image.** All too often, we see photos of amazing landscapes or wildlife, but there are objects in the frame that distract from the subjects. The most common example of this is something that doesn't belong in the background. Backgrounds should complement the subject and help set it apart from the rest of the scene. When there are distracting patterns, branches or bright spots, these complicate the image and draw the viewer's eye away from the subject.

Everything in the frame should be there for a reason and in some way help to tell the story of the subject rather than detract from it. If the image were a pencil sketch, would it include that branch, bright spot or power line? If not, then it shouldn't be in the photo, either. Remember, less is more. Keep it simple and clean. Of course, there are times when you can't move a tree or mountain, but if these things can't be incorporated into the image, it may be time to walk away and shoot something different.



3

## Lacks Strong Leading Lines



## Good Use Of Clean S-Curves



**3 Lack of strong lines.** Lines help move a viewer's eyes through the frame and create motion. Well-placed lines allow an artist to control the viewer's experience—what's seen, and most importantly, what's not seen. With conscious placement of leading lines, diagonals and S-curves, images take on a 3D feel and force the viewer to slow down to see where the image leads. Ideally, the good use of lines makes a viewer stop flipping through photos on the phone, tablet or magazine—and pause. When a viewer pauses long enough to have an emotional response, the photo is a success. In a world where images are undervalued and our brains are over-stimulated, this pause is a great indicator of a strong photograph.

## Off-Balance Visual Weight



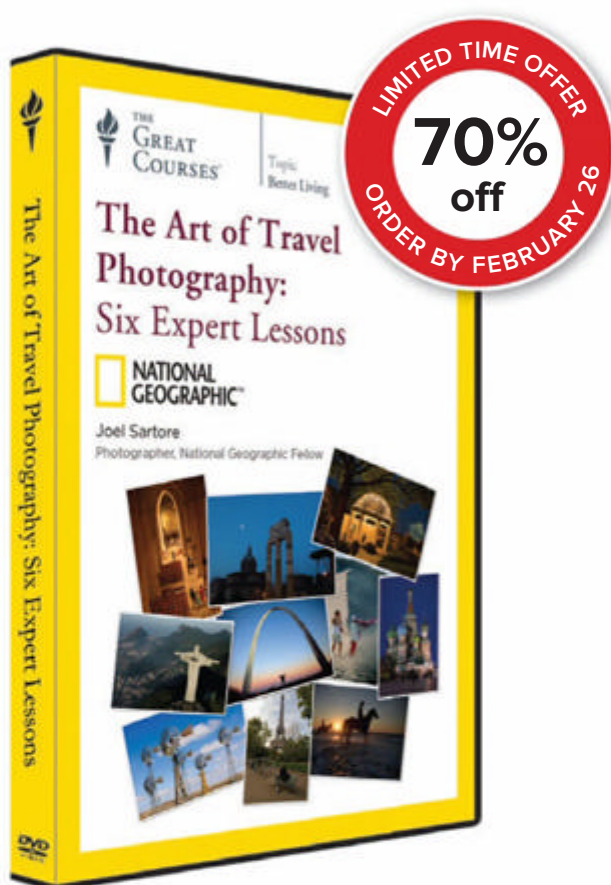
4

## Good Rule Of Thirds Balance



**4 Awkward visual weight.** While a photo can't actually be put on a scale, "visual weight" is key to the success of an image. Visual weight is the term referring to the area that draws the eye within a composition. The majority of the time, this "weight" is also the photo's main subject. Depending on the positioning of the subject within the frame, the photo can seem off-balance or too "visually heavy" on one side. In order to balance this visual weight, often a sub-subject needs to be added to the frame so its weight can "pull against" the weight of the main subject. This works best when this sub-subject helps to tell the story of the main subject, and the most successful images often create this balance using leading lines to connect subjects that are strategically placed using the Rule of Thirds.





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### ABOUT YOUR PROFESSOR

Joel Sartore is a professional photographer and a regular contributor to National Geographic magazine. His assignments have taken him to some of the world's most beautiful and challenging environments and have brought him face to face with a diversity of wildlife in all 50 U. S. states and all seven continents. He was recently named a National Geographic Fellow for his work on "The Photo Ark," a multiyear project to document the world's biodiversity in studio portraits. His photograph of a lion in a tree was voted the best picture by National Geographic magazine in 2011.

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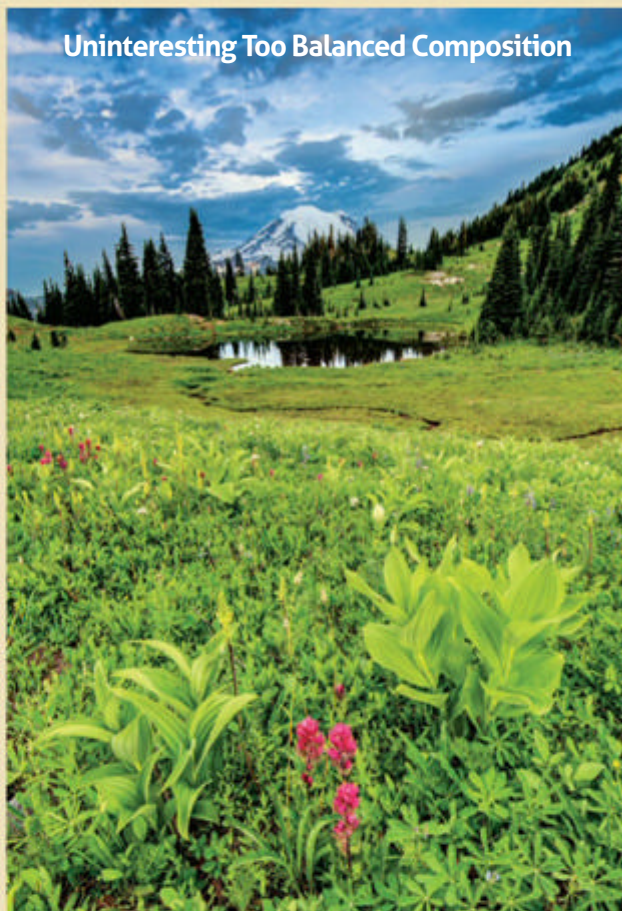


## 5

## Good Use Of Uneven Composition



## Uninteresting Too Balanced Composition



**5 Too much balance.** While Sin No. 4 is all about unbalanced visual weight in a composition, too much balance can also be deadly to a photo. Understanding the nuances of this concept can be tricky, at first. A slightly uneven composition in a photo keeps the viewer's eye moving around the image and stops it from becoming bored. Having uneven numbers of subjects (typically three) helps create this visual motion and leads to more dynamic images.

This concept can be traced back to classical Greece and the idea of the Golden Mean. In the Renaissance, painters like da Vinci revived these ideas of uneven numbers in composition. Today, this rule still holds true of the strongest pieces of art. These works don't always have just three subjects, however, but sometimes the application of three unique visual elements such as light, atmosphere and subject.

## 6

## Too Little Space For Runner



**6 No space left for movement.** In order for images to have visual motion, there needs to be space for a subject to move. The prime example of this is giving a runner a place to run onto the page rather than off the page. Before online news, when newspapers were king, much attention was paid to what direction runners were running and where on the actual page the photo was placed so the athletes didn't run

## Adequate Space For Runner To Move



off the newspaper. This concept still applies in both individual images and bigger projects such as books or PDFs.

Focus on giving your subject a place to move, even if it's a static subject rather than a runner. With landscape images, pay special attention to where a creek may be flowing and give it a place to go. It's often a perception of motion in context that creates movement rather than an actual subject in motion.





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# 7

## Good Placement Of Subject



**Poor placement of subject.** The final deadly sin of composition is poor layout within the frame. The Rule of Thirds was first penned by John Thomas Smith in 1797, but the concept can be traced back to the ancient Greeks and their idea that everything in nature is divided into unequal relationships. Using the concept referred to as the Golden Mean, everything from flowers to the human body can be divided into these relationships. Thus, to be visually appealing, the frame should never be divided equally, and our subjects should never be framed exactly in the middle. By dividing the frame into thirds (vertical and horizontal) and then placing the subject near one of the junction points of these thirds, we strengthen the image's connection to the rhythms of the natural world.

**Extra Credit! Rules are meant to be broken.** Once learned, these guidelines can be severely bent if the opportunity presents itself to create a fresh, new image. Just because a photo follows the rules and is technically correct, it's not necessarily engaging. Many by-the-book photographers hate to hear this, but slightly flawed images with emotional impact are often more powerful than those that are technically perfect and follow every rule.

The obvious historical example of engaging imperfection is the photo by Robert Capa of the landing on Omaha Beach during the D-Day offensive in 1944. The image is underexposed and blurred due to a darkroom error, yet it's one of the definitive photographs of the 20th century. That a photo with so many technical errors can carry such weight and capture so much emotion proves the point that while technical know-how is important, the "soul" of an image trumps all.

OP



*Josh Miller's images have been featured in publications throughout the world and his work is represented by Aurora Photos. To find out more about his work and his workshops, including Costa Rica in the summer of 2015, follow Josh on Instagram @joshmillerphotography or check out his website, [www.joshmillerphotography.com](http://www.joshmillerphotography.com).*

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Go to [outdoorphotographer.com](http://outdoorphotographer.com) to see more articles about composition, the rules of composition, and when and how you should break those rules.



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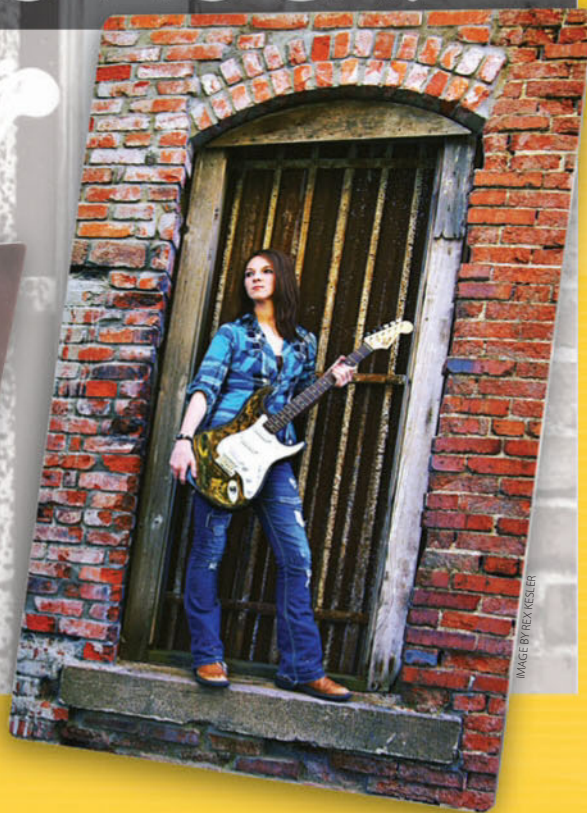
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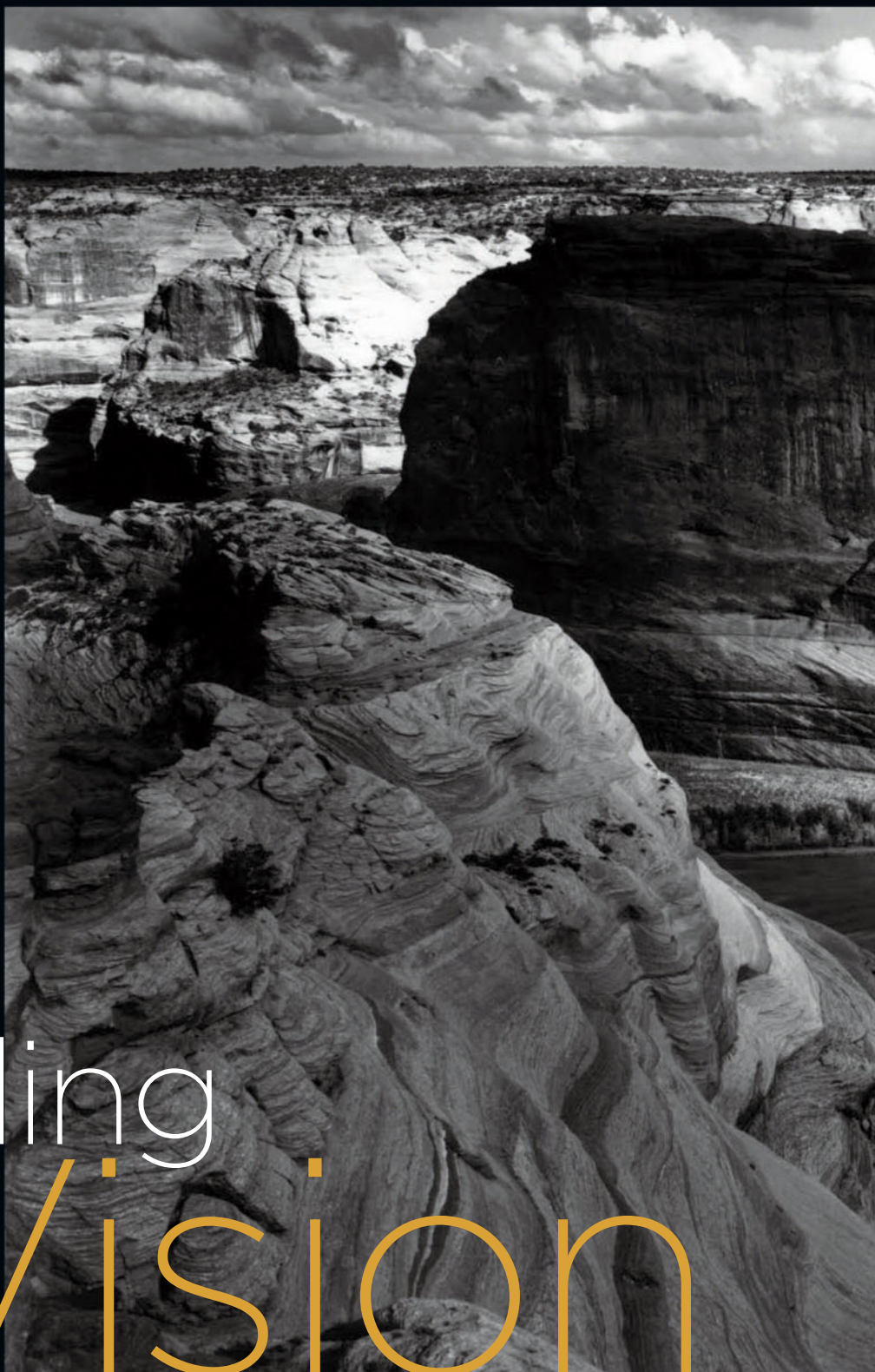
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A Ansel Adams' philosophy that, "Without a guiding vision, photography is not necessarily an important activity,"

divides photographers into two groups: those who simply shoot aesthetically pleasing one-offs of beautiful scenes and those who have a driving force behind *why* they shoot what they do and meticulously plan *how* they'll capture the image to make it meaningful. Sure, we're all likely at least a little familiar with Adams' black-and-white landscape photographs, and many would argue that his fame derived from the technical superiority of his images at the time, and their ability to be reproduced and displayed well. While that was certainly a key to his success, it was his guiding vision that led to a lifelong mission of environmental conservation and preservation of the American West that still has an impact on our lives today, decades after his death. This vision can be an inspirational force for photographers who seek to create a broader body of work.

Adams developed an interest in and an appreciation for nature at a young age while growing up in San Francisco in the early 1900s. His passion grew after exploring Yosemite and the Sierra Nevada, some months



# Guiding Vision

Ansel Adams was guided by an overarching vision for all of his photography. We look





before the National Park Service was founded in 1916, and he eventually became friendly with the founders of the burgeoning conservation movement in the U.S. when he got involved with the Sierra Club in 1919.

The Sierra Club was incorporated in 1892, thanks to the efforts of wilderness explorer and visionary John Muir, who saw the need to ensure the protection of the recently established Yosemite National Park, and a group of people from the University of California, who wanted to raise awareness of the Sierra, particularly Yosemite, and make these areas more accessible. With logging and sheep grazing in the Sierra Forest Reserve and the flooding of Hetch Hetchy Valley, the value of the Club was becoming crystal clear to all who advocated the preservation of wilderness. However, the mission of the Club essentially backfired, as increased accessibility led to overcrowding and deterioration of what they initially set out to promote and preserve. It was time for a shift in the Club's priorities, and that's when Adams' influence came in.

Adams' first real job with the Sierra Club was as a custodian. That humble beginning ultimately led to a long relationship with the Club. And, although Adams never met Muir, who died in 1914, his legacy would have a profound effect on Adams' career as a photographer and as an environmental conservationist.

In the early 1930s, Adams was the official photographer and guide during the Club's annual high-country outings. He was elected to the Club's Board of Directors in 1934 (and would later become president of the Club for a span of 37 years). At this point, he was already widely recognized as the artist of the Sierra Nevada, and a champion of the preservation of Yosemite and the creation of new parks. Knowing

at his approach and how you can apply it to your own work.

BY KRISTAN ASHWORTH





the influence photography had on park creation, the Club chose Adams to present its proposal for the establishment of Kings Canyon National Park at a national and state parks conference in Washington. Although nothing materialized on that visit, the effort continued, and two years later, Adams' new book, *Sierra Nevada: The John Muir Trail*, made it to the White House. After enthusiastic lobbying by President Franklin D. Roosevelt and Secretary of the Interior Harold L. Ickes, both extremely impressed by Adams' work, Kings Canyon National Park became

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a reality in 1940. But that was just the beginning. Through his images, in addition to writing thousands of letters and attending countless meetings, Adams' resistance to the overdevelopment of national parks was a lifelong mission. In his autobiography, he stated, "Everything I have done or felt has been in some way influenced by the impact of the natural scene."

While the majority of us aren't going to change the art of photography and the fate of the wilderness with our guiding vision like Adams' did, his dedication to his vision may assist us in changing the

way we both see our subjects and capture images to create more inspirational work. For some, a starting point may be creating a visual story with a narrative that's personal to the individual. For others, a socially significant theme may be what motivates them. Look at Adams' journey as a template. Channel what moves you, and dip into your own personality and emotions to find a unique perspective. Draw from your influences. Just like Adams was influenced by the great photographers of his time, studying images by famous photographers you admire, and discovering why their





*Looking at Ansel Adams' best work is like seeing a highlight reel of a lifetime spent with a camera in the wilderness. Adams' drive to photograph the landscape was informed by his deep commitment to conservation and the environment. As nature photographers, whether we want to shoot grand vistas or intimate scenes in black-and-white or in color, perhaps the greatest lesson we can learn from Ansel Adams is to have a guiding vision. OPENING SPREAD: Canyon de Chelly, Arizona. LEFT: Grand Tetons and the Snake River, Wyoming. BELOW: Yellowstone Falls, Yellowstone National Park, Wyoming. All photos by Ansel Adams, courtesy of the National Archives*



works continue to move and engage us, can be a step toward learning how to translate that feeling into your own images.

Once you start to develop your personal vision, it may look good on paper, but it requires time and dedication to make it influential in your work. According to Adams, "A good photograph is knowing where to stand," but even though he knew the locations he photographed well after years of exploration, this meant the commitment to leave before dawn, climb mountains, hike for hours at a time and return after dark for a chance, not a promise, of getting the shot. Search out imagery that depicts your story to help viewers feel like they're part of the scene.

Once you settle on a subject, study it, discover it and search for its essential parts to help draw out a concept for your image. Adams' work has stood the test of time because his images were planned out before pressing the shutter, and thus captured a feeling, not just a scene. Adams has said that in 1927, while perched on a cliffside shooting what would become the iconic "Monolith, the Face of Half Dome," he realized he wanted an image with more emotional impact, and that was when he first previsualized how he wanted the final image to look. Having a firm understanding of how a scene will translate into a photograph, and then finding the best way to capture the mood and spirit of the imagery to tell your story, has the potential to unleash greater creative vision.

But even then, Adams' photographs weren't complete until they inspired the awe and wonder that he felt while standing before the scene. That required becoming a master of his equipment and craft, as not all situations allowed for hours of preparation. Much like the time when he hurriedly pulled off the road to capture his famous "Moonrise, Hernandez" and couldn't find his exposure meter, he was able to deduce shutter speed and film speed from the moon's luminance seconds before losing critical light. And his precision didn't end when he left the field. Adams would spend hours at a time in the darkroom developing just a single image. Just as much effort was put into processing his images as was taking the initial photograph.

Adams' photographs are as much records of a long-ago wilderness as they are records of the people's dedication to preserve it. So whether we strive to develop a personally meaningful concept in our photography or one with social significance, we can all take a page from Ansel Adams' book: Don't simply be a trophy hunter when it comes to photography; aspire to be a storyteller.

OP



# Sharp & Rich



As a digital photographer, you can learn a lot from Ansel Adams. Choose the right gear and emulate the attention to detail that Adams devoted to his craft to get your best possible landscape photos.

**A**nsel Adams and Group f/64 were synonymous with image quality, sharpness and detail. Group f/64 took its name from an aperture setting that would lead to maximum depth of field in the image. These photographers used large-format cameras with movements that enabled even greater control over sharpness, and they employed fine-grained film with high silver content for rich tones throughout the range, from dark shadows to bright highlights. For photographers, Adams' legacy as a conservationist and artist is rivaled by his legacy as a master craftsman who coaxed the most out of his gear through technique and the choice of tools he used in the field and in the darkroom.

We can debate whether Adams would have used digital cameras and software, but that debate misses the fundamental point. If you're a digital photographer, the lessons to be learned from Adams are how to get the best possible performance and image quality out of your cameras, lenses and accessories. In this article, we look at the range of gear that's available to a landscape photographer looking to achieve Ansel Adams' level of craft.





FAR LEFT: Hasselblad H5D-60  
LEFT: Pentax 645Z  
BELOW: Phase One IQ280

# Cameras

Adams used a variety of cameras, mainly large-format view and field units, but medium format and even 35mm for some handheld work. And he used various films, although he generally stuck to his favorites once he had them dialed in.

With digital, the camera is the film—the image is recorded by the sensor built into the camera. All of today's serious digital cameras are capable of delivering excellent image quality. For the very best possible landscape image quality, a medium-format digital camera or back is the ideal choice. Those range from 22 to 80 megapixels, and start at over \$5,000, extending into the over-\$40,000 range. Pentax's 645Z offers a 50-megapixel, 43.8x32.8mm medium-format CMOS sensor at a price of \$8,499; Hasselblad offers the H5D-50c with a similar sensor and its own image "look." The H5D-60 has a 60-megapixel CCD sensor and H5D-200c CMOS Multi-Shot, which can take multiple exposures, each with

the sensor shifted a pixel, or a portion thereof between, so that each pixel receives red, green and blue color info. Phase One offers the IQ250, with a similar 50-megapixel CMOS sensor (and, again, its own "look"), and the IQ280, with a huge (53.7x40.4mm) 80-megapixel CCD sensor.

For digital Ansel Adams aspirants with smaller budgets,

a full-frame, 20-plus-megapixel DSLR or mirrorless camera would be a good choice. Among full-frame DSLRs, Nikon's D810 is king of the hill, with its 36.3-megapixel CMOS sensor and no blurring anti-aliasing filter.







ABOVE, LEFT AND RIGHT:  
Nikon D810; Canon EOS 6D  
LEFT: Sony α7R

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Go to [outdoorphotographer.com](http://outdoorphotographer.com) for more in-depth articles on cameras, lenses and other gear, as well as comparison charts on the latest models.

## Lenses

As good as modern zooms are, it's still hard to beat a top-level prime lens. It's very difficult to properly correct a zoom lens for all aberrations, distortions and the like through its range of focal lengths and much easier to fully correct a single-focal-length lens. Adams generally worked with moderate wide-angle, "normal" and short telephoto lenses: 24mm, 50mm and 80mm for a full-frame camera, 16mm, 35mm and 50mm for an APS-C unit, or 12mm, 25mm and 40mm for Micro Four Thirds. Of course, you should choose



the focal lengths that suit your vision; if you like the compressed perspective of long lenses used on distant portions of the vista, or the expanded perspective of moving in close with a really wide lens, by all means, go for it. If you're just starting out in landscape photography, you can use a high-quality zoom until you find your favorite focal lengths.

The camera manufacturers' top prime lenses are all very good, and third-party sources such as Samyang, Sigma, Tamron and Tokina offer good alternatives for those on tighter budgets. Sigma's Art-series primes rival the best





Nikon's new D750 and sub-\$2,000 D610, 24.3 megapixels each, are also good full-frame DSLR choices for landscapes. The Canon EOS 5D Mark III and lower-priced EOS 6D, 22.3 and 20.2 megapixels, respectively, are Canon's top landscape DSLRs.

Sony offers some excellent full-frame mirrorless landscape choices: the 36.4-megapixel a7R and 24.3-megapixel a7 II. In APS-C format, Canon's 20.2-megapixel EOS 7D Mark II, Nikon's 24.3-megapixel D7100 and Pentax's 24.3-megapixel K-3 are excellent landscape cameras.

In APS-C mirrorless, Sony's 24.3-megapixel a6000, Fujifilm's 16.3-megapixel X-T1 and Samsung's NX1 at 28.2 megapixels are top landscape tools. In Micro Four Thirds mirrorless, Olympus' OM-D E-M1 and Panasonic's LUMIX DMC-GH4, both 16.1 megapixels, offer the best landscape image quality. Sigma's APS-C SD1M DSLR and DP/dp-series compacts, with their unique Foveon sensors, are also excellent landscape cameras.



**FAR LEFT TO RIGHT:** Sigma 35mm f/1.4 DG HSM; Tamron SP 15-30mm f/2.8 VC; Tokina AT-X 16-28mm f/2.8 Pro; Zeiss Otus 85mm f/1.4

of the camera manufacturers' optics. Leica and Carl Zeiss offer excellent lenses that can be used on mirrorless cameras via adapters, as well as several Planar and Distagon ZE and ZF lenses for use on Canon and Nikon DSLRs. The new Zeiss Otus line for Canon and Nikon DSLRs are stunningly good lenses, but that kind of performance isn't cheap (upwards of \$4,000).



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# Practice Postprocessing



As we noted, Adams was as famous for his technical skills as for his artistic eye. He did lots of testing of developers and papers, and developed the Zone System as a means of producing predictably excellent results. To get the best possible images from your work in the field, you should perfect your processing skills. Learn all you can about processing your files, including noise reduction and sharpening. The camera manufacturers offer RAW processing software tuned for their cameras' files, and third-party software such as Adobe Photoshop Lightroom/Camera Raw, DxO Optics Pro and Phase One Capture One are also excellent. The RAW converters have their



**LEFT TO RIGHT:**  
DxO Optics Pro 10;  
Adobe Creative Cloud

own noise-reduction features, but there are also outstanding stand-alone noise-reduction programs, including Imagenomic Noiseware, Neat Image, Dfine from the Google Nik Collection, onOne Perfect Effects, PictureCode Photo Ninja and Topaz DeNoise.

## Learn Inkjet Printing

Adams often likened the negative to a composer's score and the print to the performance of that score. Your processed RAW image file is your digital negative; printing it well is another necessary skill. To make good prints, you'll need a good inkjet printer (Canon and Epson 13x19 and larger inkjets are first rate; the Canon PIXMA PRO-1 and Epson Stylus Pro 3880 are popular models) and a color-management system that enables you to make prints that match what you see on your monitor. Datacolor's Spyder and X-Rite's ColorMunki are solid color-management tools. It's also important to have a good monitor, such as the EIZO ColorEdge series. Finally, you'll need good printing stock. The premium offerings from Canon and Epson are very good, as are premium papers from third parties, such as Ilford, Moab and Museo.



**ABOVE:** Epson Stylus Pro 4900; **LEFT:** Moab Slickrock; X-Rite ColorMunki



# Filters



**Hoya HD  
Circular  
Polarizer**

Adams worked almost exclusively in black-and-white. Most of today's digital cameras have a monochrome mode, with built-in digital yellow, red and green filters. In black-and-white photography, a color filter will lighten objects of its own and similar colors, and darken objects of complementary colors; you can use a yellow or red filter to darken a blue sky so white cloud build-ups will really stand out, or a yellow or green filter to lighten foliage. A monochrome photo of a red flower and green leaves is pretty dull because both reflect about the same amount of light, appearing about the same shade of gray in the resulting photo. Shoot with a red filter, and the red rose will appear lighter while the green leaves will appear darker; the opposite will occur if you use a green filter.

Of course, shooting film, Adams didn't have built-in digital filters, so he used physical filters that attached to the lens, and that's still a great way to shoot for best results. A polarizer can reduce or eliminate unwanted reflections in nonmetallic objects and darken a blue sky in color images without affecting colors as a yellow or red filter would. A graduated neutral-density filter (or a series of them in different strengths) allows you to properly expose both a bright sky and a shaded foreground in a single exposure. A regular ND filter will reduce the amount of light entering the lens without otherwise altering it, allowing you to make a long exposure to blur moving water and such, even in sunlight. Quality filters are available from B+W, Heliopan, Hoya, Kenko, Lee, Singh-Ray and Tiffen.

*(Cont'd on page 96)*

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# The Big Sky



*Travel*

Legendary landscape master David Muench traded a 4x5 for compact digital cameras for his most recent expeditions in Montana and his exploration of Big Sky Country





When a photographer used to carrying a 4x5 camera on 20-mile hikes that gain thousands of feet of elevation simply leaps out of bed, grabs his digital camera and heads for the front porch, it's kind of homey.

In fact, it is home. The Montana skies that entrance most people are David Muench's daily fare. Brilliant, stormy, moody, fiery, explosive, all-enveloping, luminous, numinous, crystalline, slashed with the colors of rainbows or formed of the deepest blue, they're skies with no boundaries. When someone says, "the sky's the limit," they aren't talking about these skies. There is no limit here. No limit to the power of nature or to the opportunity for the photographer who can simply never let go of a camera.

Sky happens. You want to be ready.

Influencing everything below them, Montana's skies offer a summer light that goes on forever (well, almost... Alaska beats us by a few hours). When the summer sun finally does set, twilight hangs on past all reason. A few hours of stars, so thickly packed, there's hardly room for sky, are followed by the earliest of dawns.

For the images presented here, as for so much of the work he has been doing lately, David used either a Canon PowerShot SX50 HS or a Panasonic LUMIX DMC-FZ70, cameras that allow him to move quickly and to handhold. Always a practitioner of the spontaneous, ready to stop anywhere, turn around anywhere, to get







the sudden shot, to enter into the immediacy of the moment, the cameras used here are less interesting to me as onlooker than the hold of home. Knowing how much David likes to travel to the spectacular natural spots of the world, and wondering if something so simple was somehow beneath him, I asked how he feels about photographing from the front porch.

"That's hard labor," he said, smiling, then added, "It's one of those locations you hunt for in the national parks or in high mountain country. The sky here performs almost every afternoon. Storms flow over this landscape with abandon, and this place challenges me. The special moments passing by are

exhilarating. It's like watching a performance on the stage."

I take that to mean there's nothing wrong with photographing from the front porch.

There's a saying in Montana that if you don't like the weather, wait 10 minutes. If you spend that 10 minutes not watching the sky, however, you'll miss something unique, of the moment, unrepeatable. Montana's celestial light show is part of what gives truth to the state's nickname as the Big Sky Country. (A.B. Guthrie's novel, *The Big Sky*, is probably the first source of the name. But, for sure, Guthrie spent time looking at the sky above him while writing that book. Every writer spends time staring at the sky.)

The house is oriented toward the west, toward the Tobacco Root Mountains, toward the untamed, transcendent play of light. The mountains, there beyond the next ranch, beyond the ranches up the Pony Road and the old mining town of Pony itself, form the view that tantalizes in every season. Hollowtop Mountain, at 10,604 feet, the highest in the range (and one of its 43 peaks over 10,000 feet), holds snow in its glacier-carved basin all summer. The first mountain to draw new snow to it, it fascinates David in every light, in every season. But, of course, being David, the foreground matters. For that, the white horse belonging to the neighboring rancher becomes a subject he seeks, perhaps the first thing he



looks for after his moments with the early-morning light. It's an old horse. One day it won't be there anymore. Sometimes I wonder what David will do when the white horse is no longer there.

Surrounded by meadows and wetlands, most of the landscape surrounding the house is in a conservation easement, providing habitat for white-tailed deer, sandhill cranes, a blue heron, muskrats, coyotes, an occasional moose. In a grove of old willows near the creek's ingress onto the property, there has been sign of bear. The creek running through the meadows is part of a system producing the only naturally whirling disease-resistant rainbow trout in the world. An inadvertent

fly fisherman (he didn't realize he was on our land) this past summer pulled a 14-inch rainbow out of it. (He put it back.) Reflecting sky, the fire and gold of clouds, the creek is, for David, an irresistible subject. Of course, for this one, he needs to leave the house.

He does leave the house. The rest of Montana, equally compelling, draws him as much as Hollowtop. The whole of the Jefferson Valley has fascinated him ever since spending serious time in it while photographing the Lewis & Clark journey for the National Park Service in the 1970s. (Those photographs hang in the Jefferson National Expansion Memorial in St. Louis.) The Madison Valley, with the high peaks of the Madison Range on its east, its vast meadows, its virtually mythic river, provides a never-ending source of images. Once, exiting the grocery in Ennis, the Madison River's most famous fishing town, we encountered a rainbow of preposterous proportions over the meadows across the road. Every passing vehicle stopped, witness to what seemed some sort of miracle, a heavenly light, a sign that all was right with the world.

Sometimes sky is the result of a foray to photograph something else. When sculptor Jim Dolan gave a gift of 39 horse sculptures to the people of Montana, Wheat Montana—the restaurant at the I-90 crossroads leading to Bozeman, Helena, Butte, Ennis and Virginia City—donated rolling land on Highway 287 for their installation. It's a remarkable instal-

***One of the greatest landscape photographers of all time, David Muench travels through Montana with a variety of small, lightweight digital cameras. Muench proves that, in a craftsman's hands, any tool can be used to maximum effectiveness. The craggy Rocky Mountains, swathes of flatlands and the notorious weather of Big Sky Country yielded some extraordinary images.***

***OPENING SPREAD, LEFT: Storm over the Madison Range. OPENING SPREAD, RIGHT: Rainbow shooting down at the Tobacco Root Mountain Range with grasslands in the foreground. OPENING SPREAD, BOTTOM: Panorama of silhouetted mountains, storm clouds and falling rain.***



***ABOVE: Changing weather over the Tobacco Root Mountains near Harrison, Montana. RIGHT: Grasslands in low-angled sunlight.***





**ABOVE:** *The dramatic light and fast-moving cloud systems at the edges of the day make for incredible imagery when you're in the right place at the right time. To be sure, there's an element of luck involved, and David Muench has spent his life creating his own luck to capture moments like this.*

lation, a remarkable gift. Most visitors driving to or from Helena, and not knowing about the sculpture, probably just see a herd of wild horses. Grouped in small clusters, the horses seem alive, natural, totally a part of the Montana landscape. For David, photographing them meant photographing their environment, sky as deeply their environment as the grassy hill on which they stand.

"I wanted to catch very late light on the Tobacco Roots behind them," he said. "I was looking for them to be part of the landscape. I wanted to put them in a context of the Wild West—moody and mysterious."

In the end, although he made many images of the horses, what he found was that he was, once again, photographing sky.

Early this past September, when the weather forecast offered a snowstorm coming to the Beartooth, David took off from the house the day before the storm was due. One of the largest contiguous areas in the United States more than 10,000 feet high, this sky-grazing paradise of high mountains, glaciers, tundra, meadows, lakes, flowers is a place David takes personally. Photographing here since the 1960s, he's

endlessly fascinated by the high peaks (28 of which exceed 12,000 feet, including Montana's highest, 12,799-foot Granite Peak). What he wanted now was to be able to drive over the Beartooth Highway's 10,900-foot pass to be present to this late-summer snow before it melted. The highway is one of the great scenic roads of the world—along with Trail Ridge Road across Rocky Mountain National Park, Highway 1 down the California coast and the Amalfi Drive on the southern Italian coast—a tourist road offering access to an otherwise remote alpine world.

Upon arriving in Red Lodge, entrance to the highway, he found the highway closed. Eager to wait until it opened, he spent his time photographing along Rock Creek, no slouch among mountain waters, flowing, as it does, 55 miles from the Absaroka-Beartooth Wilderness to its confluence with the Clarks Fork of the Yellowstone. Photographing sky, which had totally disappeared, wasn't an option. The road remained closed the whole of the next day, while the storm pummeled the area, leaving inches of snow in town, much more on top of the Beartooth. When it opened another day later, David was among the first on top.

The previsualizing he did when he heard the weather forecast paid off.

"It worked out beautifully," he told me on his return. "Like catching a whole creel of fish."

"You don't fish," I said.

"I'd release them anyway, if I did," he offered.

But I heard that in the way he meant it, with all the excitement of a tremendous catch. (This is Montana, after all...) One of the miracles of photography is that you don't have to put back what you take. OP



To see more of **David Muench's** photography, visit his website at [davidmuenchphotography.com](http://davidmuenchphotography.com).

#### **MORE On The Web**

Go to the OP Daily Blog, where photographers tell Behind The Shot stories about some of their most memorable and dynamic images, at [outdoorphotographer.com/blog](http://outdoorphotographer.com/blog).

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# Go Old

**For anyone enamored of a film look or the analog capture process, we examine how you can build a large-format, film-based outfit today**

While most photography today is done digitally, there's still something to be said for large-format film. That's the way Ansel Adams did it (although he most certainly would have gone digital were he still out there shooting). Some feel that film has a "film look" that digital just can't capture. And some just like the process of working with large-format film—"working retro"—especially those who did so before digital.

The fact that you have only one shot before you have to change film (or, at least, flip the film holder over) makes you work differently than when you can record dozens or even hundreds of shots without thinking about "reloading." There's the challenge of calculating the exposure just so because you won't see the image until you process it in your darkroom (or your lab processes it)—no instant playback to check exposure, focus and composition. The process of preparing processing chemicals, actually handling the film, watching the image magically appear in the developer tray—these things still appeal to a number of landscape and fine-art photographers. And there's something about a silver-based print, as anyone who has seen one of Ansel Adams' prints (or those of many other talented black-and-white film masters) knows. Silver-based prints from larger-format negatives aren't better than digital inkjet prints from large-format digital files, but they are different, and some prefer them.

And, yes, they still make large-format film gear—view and field cameras, sheet films, enlargers, processing chemicals and other items. Check out the "Film-Based Large-Format Resources" sidebar for details.

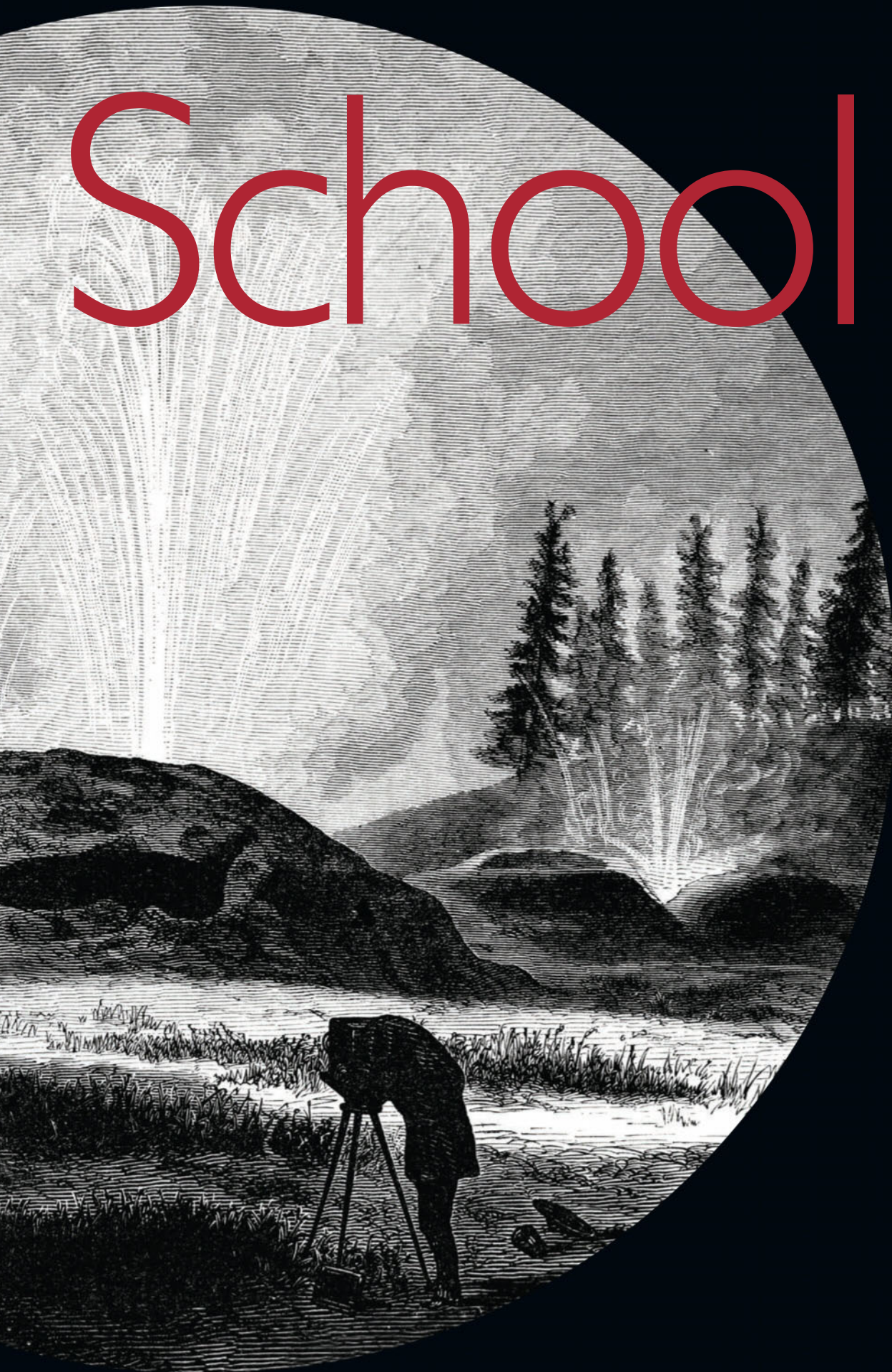
## **Cameras**

You have two basic choices in large-format cameras: view camera or field camera. A view camera consists of a front standard (to which you attach the lens of your choice) and a rear standard with focusing ground glass





# School





## Film-Based Large-Format Resources



Your local camera store or an online source such as Adorama ([www.adorama.com](http://www.adorama.com)) or B&H ([www.bhphotovideo.com](http://www.bhphotovideo.com)) is your best source of photo gear. But here are websites for some popular large-format manufacturers/distributors:

### 4x5 View & Field Cameras

Arca-Swiss, [www.rodclukas.com/arca-swiss](http://www.rodclukas.com/arca-swiss)  
Cambo, [www.cambo.com](http://www.cambo.com)  
Horseman, no website; see your photo dealer  
Linhof, [www.linhof.com](http://www.linhof.com)  
Silvestri, [www.silvestricamera.com](http://www.silvestricamera.com)  
Toyo-View, [www.toyoview.com](http://www.toyoview.com)  
Wista, [www.hpmarketingcorp.com](http://www.hpmarketingcorp.com)

### 4x5 Sheet Film

Adox, [www.adox.de/english](http://www.adox.de/english)  
Foma, [www.fomausa.com](http://www.fomausa.com)  
Fujifilm, [www.fujifilmusa.com](http://www.fujifilmusa.com)  
Ilford, [www.ilfordphoto.com](http://www.ilfordphoto.com)  
Kodak, [www.kodak.com](http://www.kodak.com)  
Rollei/Agfa, [www.rolleifilm.com](http://www.rolleifilm.com)

### 4x5 Enlargers

Beseler, [www.beselerphoto.com](http://www.beselerphoto.com)  
OmegaBrandess, [www.omegabrandess.com](http://www.omegabrandess.com)

### Processing Chemicals

Acufine, [www.omegabrandess.com](http://www.omegabrandess.com)  
Adorama, [www.adorama.com](http://www.adorama.com)  
Edwal, [www.omegabrandess.com](http://www.omegabrandess.com)  
Ethol, no website; see your photo dealer  
Ilford, [www.ilfordphoto.com](http://www.ilfordphoto.com)  
Kodak, [www.kodak.com](http://www.kodak.com)  
Photographers' Formulary, [www.photoformulary.com](http://www.photoformulary.com)  
Rollei/Agfa, [www.rolleifilm.com](http://www.rolleifilm.com)  
Sprint, [www.sprintsystems.com](http://www.sprintsystems.com)

### MORE On The Web

Go to the How-To section of the OP website at [outdoorphotographer.com](http://outdoorphotographer.com) to find more articles about large-format digital, as well as film photography.

(to which you attach a film holder or a digital back), connected by a flexible bellows and mounted on a support rail. The bellows keeps out unwanted light, and allows you to focus and perform camera movements. Field cameras mount the front and rear standards on rails on a fixed bed, and fold into conveniently carried packages, but don't allow movements of the standards as large as do monorail view cameras. Adams used both types of camera over his career. (Adams used many cameras during his career, from 35mm through Polaroid 16x20, including Hasselblad medium-format, but most of his best-known works were done with 4x5, 5x7 and 8x10 view and field cameras.)

You can move each standard in a variety of ways: vertical rise and fall, horizontal shift, tilting up or down, and swinging left or right. Rise ("vertical shift") is generally used to eliminate converging vertical lines in shots of buildings or tall trees. If you tilt the camera up to get the top of the tree in frame, the image plane won't be parallel to the tree, and the tree will seem to topple backward. With the view camera, you can move the lens up to get the top of the tree in without tilting the camera up. Shift provides the same capability, but for horizontal subject matter. Tilting and swinging allow you to control the plane of focus by adjusting the relationship among the film, lens and subject planes. When lines through all three converge at a common point, depth of field will be maximized, even at wide

apertures. Focusing is done by moving the lens farther from the rear standard (to focus closer) or closer to the rear standard (to focus farther away), using the focusing knob on the standard.

The advantages of these cameras are the compositional and depth-of-field control their movements offer, as well as the better image quality that their larger films provide (you only have to blow up a 4x5-inch image 2X linearly (4X in area) to make an 8x10-inch print, while you have to blow up a 1x1.5-inch 35mm image 8X linearly (more than 50X in area) to make the same size print). Costly tilt-shift lenses are available for 35mm SLRs, but these have limited movement range compared with view cameras and, of course, don't offer the image-quality benefits of the view camera's larger film size.

View and field camera body street prices run from less than \$1,000 to more than \$10,000. The higher-cost models generally are more sturdily and precisely built and offer yaw-free movements, precision gearing, rotating backs, depth-of-field calculators and more. But even the entry-level bodies work well for landscape photography.

### Other Gear

Of course, you'll need lenses for your view or field camera (wide-angle, normal and short telephoto, to suit your landscape vision). Bear in mind that a "normal" lens for 4x5 format is around 163mm (150mm to 180mm, in terms of existing lenses). The widest readily



*The traditional film darkroom was a creative space for many photographers. Surrounded by the chemistry and physics of the medium, you could immerse yourself in the photographic process.*

available for 4x5 is 47mm (equivalent in field of view to a 13mm lens on a full-frame DSLR or 35mm film camera); the longest is 360mm (equivalent to around 95mm on a 35mm camera). Adams did most of his landscape work with focal lengths from moderate wide-angle to short telephoto (105mm to 360mm on the 4x5 camera). Note that view cameras don't have shutters; a leaf shutter is built into each lens.

You'll also need holders for your sheet film (or a digital back; see the "Film-Based Large-Format Resources" sidebar). Note that each film holder holds two sheets of film. If you want to make 40 shots during your photo outing, you'll need 20 holders, which you'll have to load yourself in the dark (a changing bag allows you to reload in the field). You'll also need a focusing cloth (a dark cloth you drape over you and the camera so you can see the image on the ground glass in bright light for composing and focusing), and a loupe to "zoom in" to check fine focus. And, of course, you'll need a sturdy tripod to minimize camera movement and lock in your composition so you can study and fine-tune it, and focus it. Landscape photographers generally prefer a ball-type tripod head, as it makes it easy to position the camera at whatever angle you wish, then lock it there with a twist of a knob.

You'll also need a handheld exposure meter. View cameras don't have TTL metering (or built-in meters). Adams used a spot meter, which allowed him to read small areas of the scene or subject and apply his famous Zone System to nail the exposure. This is probably the most accurate way to deal with black-and-white shooting. You can also use a wider-angle reflected-light meter or an incident-light meter (which measures the light falling on the scene, so it must be positioned in the same light that's illuminating the scene, generally right in front of the main subject, aimed back at the camera lens, making it potentially awkward for much landscape work). Adams' book *The Negative* explains how he did it.

### Darkroom

Adams (who started out to be a pianist) likened the negative to a composer's score and the print to the performance of that score. So, of course,

## Going Large-Format Digital

**Y**ou can attach a digital back to many view cameras, and do your landscape photography digitally with all the view camera movements. There are also view cameras designed specifically for digital backs, such as the **Arca-Swiss M-Line**, **Cambo Ultima 23D** and **45D**, **Horseman Axella** and **LD Pro**, **Linhof Techno**, and **Silvestri Bicam** and **Flexicam**.

**Medium-format digital backs can deliver better image quality than smaller-sensor DSLRs and mirrorless digital cameras.** The higher pixel

counts mean more image detail, while the larger sensor area can collect more light, which reduces image noise and improves dynamic range and color/tonal range. Digital backs are slower in operation than DSLRs, but are the ultimate tools for landscape image quality (and faster than shooting sheet film!). We suspect Ansel Adams would be using a digital back on his large-format camera, were he shooting today, for the increased image quality and control digital offers.

**The big drawback to medium format has been performance above base ISO.**

Medium-format CCD sensors are geared to low-ISO performance, and can't match the CMOS sensors used in DSLRs and mirrorless cameras at higher ISOs. But even that's changing, with the entry of Sony's 44x33mm 50-megapixel CMOS sensor, which provides ISOs up to 6400. This sensor is available in cameras from **Hasselblad**, **Pentax** and **Phase One**, and backs from **Hasselblad**, **Mamiya Leaf** and **Phase One**. (Phase One's IQ260 and IQ280 CCD backs feature Sensor+ technology, which bins four pixels into one, increasing the usable ISO 4X, but reducing resolution to 1/4; for example, the IQ280 provides ISO settings from 50-800 at 80 megapixels and from 200-3200 at 15 megapixels—excellent performance for a CCD sensor. But the new CMOS sensor can deliver ISO 6400 at full 50-megapixel resolution.)

**Hasselblad's** CFV-50c digital back features a 43.8x32.9mm 50-megapixel CMOS sensor. **Mamiya Leaf Credo** backs are available in 43.9x32.9mm 40-megapixel, 53.9x40.4mm 60-megapixel and 53.7x40.3mm 80-megapixel CCD versions, plus a 43.9x32.9mm 50-megapixel CMOS version. **Phase One's** latest digital backs include the IQ250 with a 44x33mm 50-megapixel CMOS sensor, the IQ260 and IQ280 with 53.9x40.4mm 60-megapixel and 53.7x40.4mm 80-megapixel CCD sensors, respectively, and the IQ250 Achromatic with a 53.7x40.3mm 60-megapixel monochrome CCD sensor.

You can also gain view camera movements for your **Canon** or **Nikon** DSLR or **Sony E-mount** mirrorless camera via the **Arca-Swiss M-Line** for **Canon** or **Nikon**, **Cambo Ultima 35**, **Horseman Axella** and **Silvestri Flexicam**.

**FROM TOP TO BOTTOM: Phase One IQ280; Hasselblad H5D-50; Phase One IQ250**



he developed his own film and made his own prints (although, in later years, he had assistants to help out). Serious black-and-white photographers generally do develop their own film and make their own prints to have maximum control over the process and the results. But a large-format darkroom can be costly to equip, and the chemicals aren't environmentally friendly, so some find a good pro lab and work with the folks there to have their film processed and prints made to their tastes.

### Operation

View cameras are leisurely devices, no 10 fps auto-everything here. You find a camera location, set up your tripod, mount the camera, attach the selected lens, level the camera and tripod, attach the cable release, open the lens, set the lens to its widest aperture, cover yourself with the dark cloth, and compose your shot on the ground glass. Focus, make any desired camera adjustments (tilt/swing/shift/rise/fall), fine-tune focus, set

(Cont'd on page 104)





# Classes, Tours & Workshops

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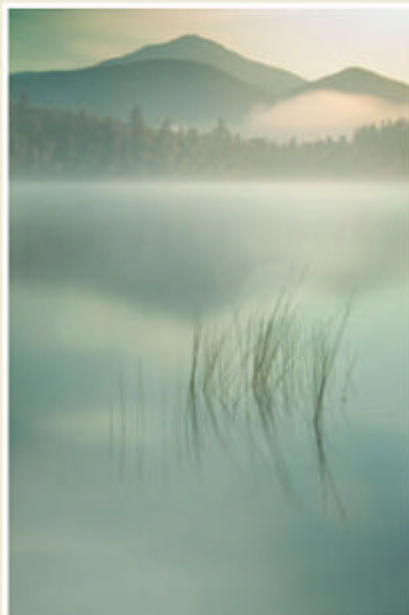
Stephen Oachs

## Aperture Academy New Locations And Sojourn Series Expansion | 2015 |

The Aperture Academy has added exciting new international adventure workshops to their wildly popular Sojourn Series of on-location expeditions. Aperture Academy is one of the largest private photography schools, expanding their class schedule in 2015 to over 200 classes and workshops around the globe. Their new Sojourn adventures, Banff Canadian Rockies (seven days) and The Scottish Highlands (nine days), joins Colors of Costa Rica, Grizzly Bears of Alaska, Iceland, American Southwest and Africa expeditions. U.S. workshops visit over 30 locations including the very popular Arches, Canyonlands, Yellowstone, Grand Teton and Yosemite National Parks, day and night shooting, beginner to pro levels. Aperture Academy's 2015 schedule ranges from photography basics to advanced applications; workshops go from day to night, from natural light portraiture to star trails and light painting.

For more information, contact: Aperture Academy, (408) 369-8585, [info@apertureacademy.com](mailto:info@apertureacademy.com), [www.apertureacademy.com](http://www.apertureacademy.com).

Tom Dwyer



## Adirondack Photo Tours | Year-Round |

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every skill. Virtually unlimited variety close at hand, from mountain peaks to verdant valleys, cascading waterfalls, meandering mountain streams and tranquil lakes. Each tour/workshop empowers individual participants to seek their unique interests. With more than four decades exploring the Adirondacks, Dwyer's knowledge behind the camera, as well as of the venues in your viewfinder, assure your ability to grow technically as well as creatively, and to bring home artful images and new friendships.

For more information, contact: Tom Dwyer, (315) 420-3513, [tom@tomdwyerphoto.com](mailto:tom@tomdwyerphoto.com), [www.tomdwyerphoto.com](http://www.tomdwyerphoto.com).

## Moab Photography Symposium

| April 30-May 3, 2015 |

The Moab Photography Symposium is the premier photography gathering on the Colorado Plateau. The 2015 Symposium (#12), is an annual gathering of fine-art landscape enthusiasts who come together for three potent days of feature presentations, field



Bruce Hucko

workshops, technical sessions, image sharing and camaraderie. Featured speakers (who also lead workshops) are Colleen Miniuk-Sperry, Guy Tal, Michael Gordon, Charles Cramer, Chuck Kimmerle and Bruce Hucko. Additional workshops are presented by Steve Traudt, Jeff Foott and Judith Zimmerman. The Moab Symposium is for those who seek personally meaningful images in the landscape.

For more information, contact: Bruce Hucko, [bhucko@frontiernet.net](mailto:bhucko@frontiernet.net), [www.moabphotosym.com](http://www.moabphotosym.com).



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# Classes, Tours & Workshops

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George Theodore

## American Nature Photography Workshops | 2015 |

Workshops and tours are offered year round for all levels of experience. Locations are predominately in the U.S., although a few are offered outside the country, as well. Many of American Nature's events get sold out well in advance, and their average attendance over the past four years is 97%. Their goal is simple: to take one's ability to the next level and to have fun. Events are led by Tom Bol and George Theodore. Theodore, an early convert to the digital format, has over 50 years of experience as a photographer. Bol was named as one of America's top visionaries by *National Geographic Adventure* and was picked by *PDN* as one of the best workshop instructors in the United States. He's a regular contributor to *Digital Photo*, and author of *Adventure Sports Photography: Creating Dramatic Images in Wild Places*. Bol is also on the KelbyOne faculty.

For more information, contact: (970) 219-5140, [george@amnaph.com](mailto:george@amnaph.com), [www.amnaph.com](http://www.amnaph.com).

## Scenic Aperture Workshops | 2015 |

Scenic Aperture's 2015 workshop lineup includes Exotic Birds of the Prairie, Sandhill Cranes Ancient Migration, Florida Birds by Boat, Monument Valley, Colorado Fall Color, Grand Teton Autumn, Bosque del Apache and 88 Outdoor Photographer [outdoorphotographer.com](http://outdoorphotographer.com)

White Sands. These photography workshops provide individualized training and exciting opportunities to photograph North America's most beautiful areas. Workshops include both classroom and in-field instruction. They provide meaningful learning opportunities for photographers of every skill level. Their focus is on you! These workshops are designed to help you develop skills and knowledge about the creative and technical aspects of photography, and are both exhausting and exhilarating.

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## Cuba Photography Workshop | 2015 |

Cuba, A Fading Beauty: Join three-time Pulitzer Prize-nominated photojournalist Richard Ellis for an amazing small-group journey to Cuba for Easter Week to photograph the beauty of the island before it changes forever! You'll capture daily life in Havana and photograph the people of Cuba, including visiting the neighborhoods of Havana, a historic boxing gym, ballet studio and markets, as well as venturing outside the city to the amazing Viñales Valley where the famous Cuban tobacco is grown. An amazing seven-day journey beginning in Miami and including hotels, flights, transport, translators, most meals and photography instruction.

For more information, contact: (843) 814-6001, [richard@charlestonphotoworkshops.com](mailto:richard@charlestonphotoworkshops.com), [www.charlestonphotoworkshops.com](http://www.charlestonphotoworkshops.com).

## Torres del Paine & The Falkland Islands

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This special tour combines two of the Southern Hemisphere's most incredible locations for photography: Chile's iconic Torres del Paine National Park and the Falkland Islands. These dates have been specifically selected to coincide with the absolute height of springtime, offering unsurpassed wildlife opportunities,

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when most birds and mammals will be with their newborn babes. There will especially be plenty of activity in Torres del Paine surrounding the guanaco calving season, with predators such as foxes and pumas on the prowl, and with condors and other birds doing the cleanup. Blooming shrubs and wildflowers will also be in abundance, offering a special accent to the majestic Patagonian landscape. The Falkland Islands are a wildlife mecca, and primary focus will be on penguins (five species: king, gentoo, rock hopper, Magellanic and, occasionally, macaroni). Hundreds of black-browed albatross will be in nests with their recently hatched chicks, and you'll also see dozens of other bird species, several endemic to the islands, in addition to sea lions, elephant seals, porpoise and other sea mammals. The tour is led by American photographer/guide Rex Bryngelson, a longtime resident and operator of unique photo safaris in Patagonia.

For more information, contact: 56982909371, [rex@patagoniaphoto.com](mailto:rex@patagoniaphoto.com), [www.patagoniaphoto.com](http://www.patagoniaphoto.com).



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Aug 16-21 Lake Clark NP, AK Bears  
Aug 22-31 - Denali & Kenai Fords NP, AK  
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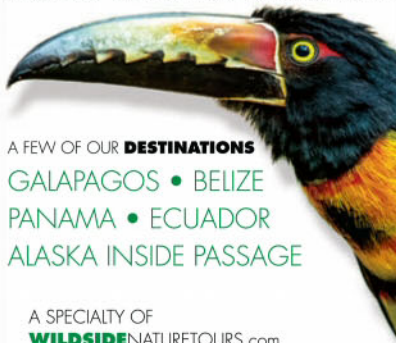
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The great early photographers used large-format cameras and films with ASA ratings in the double digits. One of Ansel Adams' favorite films was said to be the Kodak Panatomic-X. It had an ISO of 32. Compared to the Sony A7s with a maximum ISO of 409,600, you can get a sense of how much light-gathering technology has changed since Adams focused his 8x10 view camera at Half Dome.

The low ASA and ISO ratings, as well as

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the large formats, made for very long exposures. There was no way around that if one wanted to maintain depth of field. For these photographers, a tripod wasn't optional—it was an absolute necessity that was as much a part of the overall camera setup as the lens. Also, the early landscape photographers didn't only have to pay attention to the light—they had to pay attention to the wind. Yes, a breeze that's refreshing on the face meant blurs in the image from elements like swaying tree branches or bushes. And a large-format view camera is like a sail that shakes and shudders in the wind.

New film emulsions and camera

technology brought the prospect of handholding within reach. Image stabilization—in-camera and in-lens—is an incredible advancement that enables photographers to push the limits. And of course, as we mentioned, high-ISO technology lets us maintain usable shutter speeds and depth of field in lower light.

So with all of these advancements, it might seem that the tripod has simply become obsolete for most nature photographers. To be sure, having the ability to move around and explore a scene quickly unleashes creativity, but it can be a two-edged sword. The fast-paced “got it... move on” approach isn't necessarily the best approach. One reason we continue to be advocates for tripods is for the way they get us to slow down, consider the composition, watch the scene evolve in the changing light and wait for the right moment. The other reason we continue to



**Gitzo GT1542  
Mountaineer Series 1**



**Manfrotto MT057C4-G  
057 Carbon Fiber**



**Induro Carbon  
8X CT214**

be pro-tripod is because as good as the latest technology is and as steady as our hands might be, there's still going to be some tiny amount of camera shake. The question is, how much is acceptable? For absolute maximum image quality, anchoring your gear on a sturdy tripod just can't be beat.

Fortunately, working with a tripod doesn't have to be painful. Carbon fiber has made the experience of carrying and using one much easier than it was for the likes of Ansel Adams. The weight of a carbon-fiber tripod is considerably less than a wooden model made for the same-size camera setup. Despite being lighter, the carbon-fiber models are just as sturdy and dampen out fast. In a breeze, you use your hand on one of the legs or hang your camera bag from the center to lower the center of gravity and add some more stability. Here are some popular models for landscape photographers to consider. We're spotlighting four- and five-leg section tripods that can carry at least 22 pounds.

The **Benro A2580F** weighs just over three pounds and has a maximum capacity of 26.4 pounds. Maximum height is 55.51 inches. The legs are made of four sections that collapse down to 19.88 inches, and they can be splayed out independently. You lock the legs into place with flip locks. The A2580F has a grooved, rapid center column to give you some added height if needed, and it can be inverted to allow you to work at ground level. The tripod comes

with spiked-steel and runner feet, and there's a closed-cell foam sleeve on one of the legs for firm grip and comfortable carrying. A built-in bubble level helps keep horizon lines straight. Estimated Street Price: \$127. Contact: [www.benrousa.com](http://www.benrousa.com)

The **Flashpoint F-1428 Carbon Fiber Tripod** is a five-section tripod with a maximum load of 26 pounds. With the legs and center column fully extended, it goes up to 72 inches. The five leg sections close down to 24 inches. Legs are locked into place with double grip-twist locks. Retractable spiked feet keep the tripod firmly anchored on a variety of surfaces. The F-1428 weighs 5.72 pounds. Estimated Street Price: \$329. Contact: [www.adorama.com](http://www.adorama.com)

The **Giottos Classic 8214 Carbon Fiber YTL Silk Road** tripod has four leg sections that extend to a maximum height of 73.2 inches and collapses down to 21.3 inches. The center column is Y-shaped, which allows the legs to fold closer together and results in a more compact overall package. Giottos says it also helps prevent

torsion when extended. The center column can be inverted for working as close as 7.1 inches from the ground. The legs are locked in place by lever locks, and they can be splayed with three lockable positions. Maximum load is 22 pounds, and the tripod weighs 3.3 pounds. Estimated Street Price: \$419. Contact: [www.giottosusa.com](http://www.giottosusa.com)

The **Gitzo GT1542 Mountaineer Series 1** carbon fiber-tripod supports up to 22 pounds and weighs 2.8 pounds. Gitzo uses "Carbon eXact" tubing in the tripod's construction. This makes the GT1542 stronger and more rigid than the previous GT1541 model. The four section legs extend to a maximum height of 51.1 inches (62.6 is the maximum with the center column extended). The collapsed length is 21.3 inches. Legs lock in place with Gitzo's venerable twist locks, and with the independently adjustable legs fully splayed, the minimum height is 5.9 inches. Estimated Street Price: \$759. Contact: [www.gitzo.us](http://www.gitzo.us)

The **Induro Carbon 8X CT214** tripod can carry 26.4 pounds and weighs 3.3 pounds. The four leg sections extend to 52.6 inches, and with the center column fully extended, maximum height is 61.2 inches. Fully collapsed, the CT214 is 20.9 inches long. The legs are independently spreadable with three position stops. The center column is grooved, and it can be inverted for low-angle shooting. The legs lock in position via twist locks, and





**Really Right Stuff TQC-14**

interchangeable rubber and spiked-steel feet are included. Estimated Street Price: \$392. Contact: [www.indurogear.com](http://www.indurogear.com)

The **Manfrotto MT057C4-G 057 Carbon Fiber** tripod has, without a doubt, the name most reminiscent of a World War II-era Enigma code transmission. Manfrotto product names have always been a bit of a mystery to decipher. What's plain, however, is that this tripod is a good option for a landscape shooter. It extends to a maximum height of 80.7 inches and has a geared center column. The four leg sections have lever locks, and they compress down to 26.2 inches. The maximum load capacity is 26.5 pounds, and the tripod weighs 8.2 pounds. Estimated Street Price: \$899. Contact: [www.manfrotto.us](http://www.manfrotto.us)

Billed as their "ultimate traveling tripod" the **Really Right Stuff TQC-14** has a maximum load capacity of 25 pounds, and it weighs just 2.7 pounds. It can achieve a maximum height of 59 inches with the center column extended. The four leg sections are held in place with twist locks. When collapsed, the TQC-14 is 17.7 inches. Really Right Stuff designed this tripod to match up with their BH-30 ballhead, but it can handle other heads, as well. The legs are independently adjustable. Estimated Street Price: \$850. Contact: [www.reallyrightstuff.com](http://www.reallyrightstuff.com)

The **Slik Pro 924 CF 4-Section Carbon Fiber** tripod weighs 5.1 pounds, and it can support up to 26.5 pounds. The four leg sections extend to 57.9 inches, and the maximum height with the geared center column extended is 70.5 inches.

(Cont'd on page 104)



## Focusing

(Cont'd from page 71)

Adams focused the image on his large-format camera's ground glass screen manually, covering himself with a dark cloth to enable him to see the dim image in bright sun conditions. For best landscape results, you should focus your digital camera manually using Live View mode because autofocus, especially phase-detection AF, isn't accurate enough for Adams-quality landscape images. The image on the camera's LCD monitor can be hard to see in bright light, so you can do as Adams did and drape a dark cloth over you and the tripod-mounted camera, or use a device such as the Hoodman HoodLoupe, which fits over the monitor and eliminates stray light. Many newer cameras offer focus peaking, which illuminates the in-focus portions of the scene or subject. You can also zoom the image to magnify it for easier manual focusing.

For the big view-camera look that Adams got on the ground glass of his 4x5 and 8x10 cameras, consider a CamRanger. The device connects to your digital camera via USB, and establishes an ad-hoc WiFi network that allows you to wirelessly stream the live view output of your camera to a smart device (iPhone/iPad/iPod touch, Android device) and control the camera from the smart device from up to 150 feet away. This is handy for many outdoor shooting situations. You even can set up an intervalometer and HDR with the CamRanger.



**TOP: Hoodman HoodLoupe**  
**ABOVE: CamRanger**

## Tripod & Head



Adams did his landscapes with the camera solidly locked onto a sturdy tripod. Besides eliminating camera shake as a source of image blur, a good tripod locks in your composition so you can carefully examine and focus it, and won't accidentally change it as you squeeze off the shot. For serious landscape photography, you, too, should

use a tripod. Good ones are available from Argraph, Benbo, Benro, Berlebach, Cullmann, Davis & Sanford, Giottos, Gitzo, Induro, Linhof, Manfrotto, Really Right Stuff, Slik and others. You want one that can solidly support your camera/lens, and that you can carry to your shooting locations without strain.

To get sharp landscapes, you need a good head on your shoulders, and on your tripod. The most popular tripod heads among landscape shooters are ballheads because they allow you to quickly position the camera as desired, then lock it there with the twist of a knob. The tripod manufacturers offer good ballheads for their tripods. Acratech, Arca-Swiss, Cambo, Kirk Enterprises and Novoflex also offer good ballheads.



**LEFT:**  
**Arca-Swiss**  
**Ballhead**  
**ABOVE:**  
**Really Right**  
**Stuff Tripod**

OP

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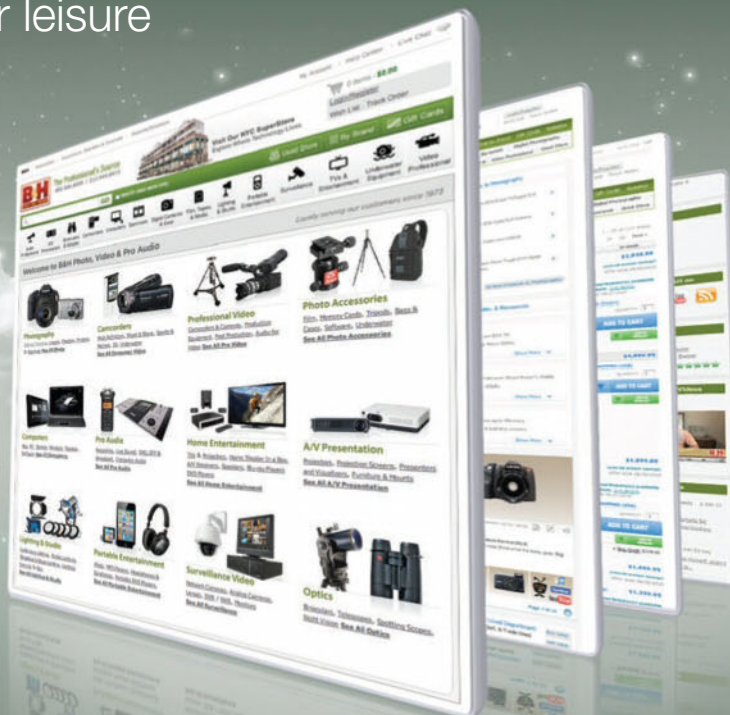
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Page 2

## FUJIFILM X-T1 Mirrorless System Camera

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- 3.0" LCD • Intelligent Hybrid AF & Focus Peaking
- 8 fps Continuous Shooting • Built-In Wi-Fi
- Full HD 1080p Video Recording at 60 fps

Body Only #FUXT1B  
with 18-55mm Lens #FUXT11855B



16 Mega  
Pixels

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- 3.0" LCD • Digital Split Image and Focus Peaking
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Body Only #FUXE2\*  
with 18-55mm Lens #FUXE21855\*



16 Mega  
Pixels

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- Uses Fujifilm X Mount Lenses • Focal Plane Shutter
- 3.0" Tilt LCD • Built-In Wi-Fi • 100-25600 ISO
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- Available in Black, Brown or Silver

Body Only #FUXM1\*  
with Silver XC 16-50mm Lens #FUXM11650\*



16 Mega  
Pixels

## SAMSUNG NX Mini Mirrorless System Camera

- Micro 4/3 System • 6 fps RAW Continuous Shooting
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- microSD, microSDHC, microSDXC Card Slot
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with NX-M 9mm Lens #SANXNM9L\*  
with NX-M 9-27mm Lens #SANXM927\*



20 Mega  
Pixels

## Nikon 1 J4 Mirrorless System Camera

- EXPEED 4A Image Processor • Built-In Wi-Fi
- microSD, microSDHC, microSDXC Card Slot
- Uses Nikon 1 Lenses • 3.0" Touchscreen LCD
- 20 fps Shooting with Full-Time AF
- Full HD 1080p Video Recording at 60 fps
- Available in Black, Orange, Silver or White

with 10-30mm Lens #NI1J41030\*



18 Mega  
Pixels

## Nikon 1 V3 Mirrorless System Camera

- EXPEED 4A Image Processor • Built-In Wi-Fi
- microSD, microSDHC, microSDXC Card Slot
- Uses Nikon 1 Lenses • 3.0" Tilting Touchscreen LCD
- Movie e-VR Stabilization • Hybrid AF System
- 20 fps Shooting with Full-Time AF • ISO 12800
- Full HD 1080p Video Recording at 60 fps

with 10-30mm Lens #NI1V31030



18 Mega  
Pixels

## OLYMPUS OM-D E-M1 Mirrorless System Camera

- TruePic VII Image Processor • Micro 4/3 System
- 3.0" Tilting LCD Touchscreen • Full HD 1080p Video
- SDHC/SDXC Card Slot • Built-In Wireless
- FAST Dual Phase- & Contrast-Detection AF
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- Dust/Splash/Freezeproof Magnesium Alloy Body

Body Only #OLEM1



16 Mega  
Pixels

## OLYMPUS OM-D E-M10 Mirrorless System Camera

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- 3.0" Tilting Touchscreen LCD • 8 fps Shooting
- SDHC/SDXC Card Slot • Built-In Wi-Fi
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- Full HD 1080p Video Recording at 30 fps
- Available in Black or Silver

with 14-42mm Lens #OLEM101442\*



16 Mega  
Pixels

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### ► FUJIFILM

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| 14/2.8 XF R.....                | 899.00 | 56/1.2 XF R.....          | 999.00 |
| 18/2.0 XF R.....                | 599.00 | 60/2.4 XF Macro.....      | 649.00 |
| 23/1.4 XF R.....                | 899.00 | 10-24/4 XF R OIS.....     | 999.00 |
| 27/2.8 XF.....                  | 449.00 | 16-50/3.5 5.6 XC OIS..... | 399.00 |
| 35/1.4 XF R.....                | 599.00 | 18-55/2.8 4 XF R OIS..... | 699.00 |
| 55-200/3.5-4.8 XF R LM OIS..... | 699.00 |                           |        |
| 50-230/4.5-6.7 XC OIS.....      | 399.00 |                           |        |

### ► Nikon

#### Nikon 1 Mirrorless Lenses

|                        |        |                          |        |
|------------------------|--------|--------------------------|--------|
| 10/2.8 AW.....         | 196.95 | 10-30/3.5 5.6 VR PD..... | 296.95 |
| 10/2.8.....            | 246.95 | 10-100/4.0 5.6 VR.....   | 546.95 |
| 18.5/1.8.....          | 186.95 | 11-27.5/3.5 5.6 AW.....  | 146.95 |
| 32/1.2.....            | 896.95 | 11-27.5/3.5 5.6.....     | 186.95 |
| 6.7-13/3.5 5.6 VR..... | 496.95 | 30-110/3.8 5.6 VR.....   | 246.95 |
| 10-30/3.5 5.6 VR.....  | 186.95 | 70-300/4.5 5.6 VR.....   | 996.95 |

### ► SAMSUNG

#### Mirrorless System Lenses

|                              |      |                             |      |
|------------------------------|------|-----------------------------|------|
| 10/3.5 Fisheye.....          | CALL | 30/2.0 NX Pancake.....      | CALL |
| 16/2.4 Pancake.....          | CALL | 45/1.8.....                 | CALL |
| 20/2.8 Pancake.....          | CALL | 45/1.8 [T6] 2B/3D.....      | CALL |
| 60/2.8 Macro ED OIS SSA..... | CALL |                             |      |
| 85/1.4 ED SSA.....           | CALL | 18-55/3.5-5.6 OIS.....      | CALL |
| 12-24/4-5.6 E.....           | CALL | 18-200/3.5-6.3 ED OIS.....  | CALL |
| 16-50/3.5-5.6 ED OIS.....    | CALL | 20-50/3.5-5.6 ED II.....    | CALL |
| 16-50/2-2.8 5.6 ED OIS.....  | CALL | 50-200/4-5.6 ED OIS II..... | CALL |

### ► Panasonic

#### Lumix G Vario Mirrorless System Lenses

|                                                   |          |                        |          |
|---------------------------------------------------|----------|------------------------|----------|
| 8/3.5 Fisheye.....                                | 639.95   | 14/2.5 Aspherical..... | 324.95   |
| 15/1.7 Aspherical Leica DG Summilux.....          | 597.99   |                        |          |
| 20/1.7 Aspherical.....                            | 427.99   |                        |          |
| 25/1.4 Aspherical Leica DG Summilux.....          | 597.99   |                        |          |
| 42.5/1.2 Asph. Power OIS Leica DG Nocticron.....  | 1,597.99 |                        |          |
| 45/2.8 Asph. Mega OIS Leica DG Macro-Elmarit..... | 897.99   |                        |          |
| 7-14/4.0 Asph.....                                | 968.00   | 12-35/2.8 X Asph.....  | 997.99   |
| 12-32/3.5-5.6 Asph.....                           | 347.99   | 35-100/2.8.....        | 1,497.99 |
| 14-42/3.5-5.6 Aspherical Mega OIS.....            | 167.00   |                        |          |
| 14-42/3.5-5.6 X PZ Power OIS (Silver).....        | 316.00   |                        |          |
| 14-45/3.5-5.6 Aspherical Mega OIS.....            | 289.00   |                        |          |
| 14-140/4.0-5.8 HD Aspherical Mega OIS.....        | 429.95   |                        |          |
| 14-140/3.5-5.6 Aspherical Power OIS.....          | 660.49   |                        |          |
| 45-150/4-5.6 Asph.....                            | 249.00   | 45-200/4-5.6 OIS.....  | 269.00   |
| 45-175/4-5.6 OIS.....                             | 379.00   | 100-300/4-5.6 OIS..... | 597.99   |

### ► OLYMPUS

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| FL-300R Flash.....         | 136.95 | RF-11 Ring Flash..... | 249.95 |
| FL-600R Flash.....         | 299.95 | SRF-11 Ring Set.....  | 559.95 |
| FL-50R Flash.....          | 499.95 | TF-22 Twin Flash..... | 449.95 |
| STF-22 Twin Flash Set..... | 739.95 |                       |        |

#### M.Zuiko Micro 4/3 Mirrorless Lenses

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|---------------------------------------|--------|-------------------------|--------|
| 9mm f/8.0 Fisheye Body Cap Lens.....  | 99.00  |                         |        |
| 15mm f/8.0 Fisheye Body Cap Lens..... | 49.00  |                         |        |
| 12/2.0 (46).....                      | 799.00 | 45/1.8 (37).....        | 399.00 |
| 17/2.8 (37).....                      | 499.00 | 60/2.8 Mac ED (46)..... | 499.00 |
| 17/1.8 (46).....                      | 499.00 | 75/1.8 ED (58).....     | 899.00 |
| 25/1.8 (46).....                      | 399.00 | 9-18/4.0-5.6 (52).....  | 699.00 |
| 12-40/2.8 Pro ED (62).....            | 999.00 |                         |        |
| 12-50/3.5-6.3 ED EZ (52).....         | 499.00 |                         |        |
| 14-42/3.5-5.6 EZ ED (37).....         | 349.00 |                         |        |
| 14-42/3.5-5.6 II R (37).....          | 299.00 |                         |        |
| 14-150/4-5.6 (58).....                | 599.00 |                         |        |
| 40-150/4-5.6 ED R (58).....           | 199.00 |                         |        |
| 75-300/4.8-6.7 II ED (58).....        | 549.00 |                         |        |

### ► PENTAX

#### AF Flash System

|                |                   |
|----------------|-------------------|
| AF-360FGZ..... | AF-540FGZ II..... |
|----------------|-------------------|

#### DA Digital AF Lenses

|                                           |                               |
|-------------------------------------------|-------------------------------|
| 15/4.0 ED AL HD Limited (49).....         |                               |
| 14/2.8 ED IF (77).....                    | 35/2 AL (49).....             |
| 21/3.2 ED AL Limited (49).....            | 40/2.8 Limited (49).....      |
| 35/2.8 Macro HD Limited (49).....         |                               |
| 40/2.8 HD Limited (49).....               | 56/5.6 ED AW (112).....       |
| 50/1.8 (52).....                          | 10-17/3.5-4.5 ED IF (77)..... |
| 55/1.4 SDM (58).....                      | 12-24/4 ED AL IF (77).....    |
| 70/2.4 HD Limited (49).....               | 16-50/2.8 ED AL SDM (77)..... |
| 200/2.8 ED IF SDM.....                    | 17-70/4.0 AL IF SDM (67)..... |
| 300/4.0 ED IF SDM (77).....               | 18-55/3.5-5.6 AL WR (52)..... |
| 18-135/3.5-5.6 ED AL (F) DC WR (62).....  |                               |
| 18-270/3.5-6.3 ED SDM (62).....           |                               |
| 20-40/2.8-4 HD Limited ED DC WR (55)..... |                               |
| 50-135/2.8 ED SDM (67).....               | 50-200/4-5.6 ED WR (52).....  |
| 55-300/4-5.8 HD ED WR (58).....           |                               |
| 60-250/4.0 ED IF SDM (67).....            |                               |

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| 31/1.8 Limited.....             | 50/1.4 (49).....         |
| 35/2.4 AL (49).....             | 50/2.8 Macro (52).....   |
| 43/1.9 Limited (49).....        | 77/1.8 Limited (49)..... |
| 100/2.8 D FA WR Macro (49)..... |                          |

### ► SONY

#### Flash System

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| HVL-F20M..... | 149.99 | HVL-F43M..... | 398.00 |
| HVL-F20S..... | 149.99 | HVL-F60M..... | 548.00 |

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| 20/2.8 (49).....                | 348.00   | 35/2.8 ZA (49).....    | 798.00 |
| 24/1.8 (49).....                | 1,098.00 | 50/1.8 OSS (49).....   | 298.00 |
| 30/3.5 Mac (49).....            | 278.00   | 55/1.8 ZA FE (49)..... | 998.00 |
| 10-18/4 OSS (62).....           | 848.00   |                        |        |
| 16-50/3.5-5.6 OSS (40.5).....   | 348.00   |                        |        |
| 16-70/4 ZA OSS (55).....        | 998.00   |                        |        |
| 18-55/3.5-5.6 (49).....         | 298.00   |                        |        |
| 18-105/4 G OSS (72).....        | 598.00   |                        |        |
| 18-200/3.5-6.3 (67).....        | 898.00   |                        |        |
| 18-200/3.5-6.3 OSS (62).....    | 848.00   |                        |        |
| 18-200/3.5-6.3 PZ OSS (67)..... | 1,198.00 |                        |        |
| 24-70/4 ZA OSS (67).....        | 1,198.00 |                        |        |
| 28-70/3.5-5.6 OSS (55).....     | 498.00   |                        |        |
| 55-210/4.5-6.3 OSS (49).....    | 348.00   |                        |        |
| 70-200/4.0 G OSS (72).....      | 1,498.00 |                        |        |

#### Digital Lenses

|                                   |           |                       |        |
|-----------------------------------|-----------|-----------------------|--------|
| 16/2.8 Fish-eye.....              | 998.00    | 20/2.8 (72).....      | 748.00 |
| 24/2 Carl Zeiss (72).....         | 1,398.00  |                       |        |
| 30/2.8 DT Macro (49).....         | 198.00    |                       |        |
| 35/1.4 G (55).....                | 1,498.00  | 50/1.8 DT (49).....   | 168.00 |
| 35/1.8 DT (55).....               | 218.00    | 50/1.4 (55).....      | 448.00 |
| 50/1.4 Carl Zeiss ZA (72).....    | 1,498.00  |                       |        |
| 50/2.8 Mac (55).....              | 598.00    | 85/2.8 (55).....      | 298.00 |
| 85/1.4 Carl Zeiss (72).....       | 1,698.00  |                       |        |
| 100/2.8 Macro (55).....           | 798.00    |                       |        |
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| 300/2.8 G APD II (42)R.....       | 7,498.99  |                       |        |
| 500/4 G (42)R.....                | 12,998.00 |                       |        |
| 11-18/4.5-5.6 DT (77).....        | 798.00    |                       |        |
| 16-35/2.8 ZA SSM (77).....        | 1,998.00  |                       |        |
| 16-50/2.8 DT (40.5).....          | 798.00    |                       |        |
| 16-80/3.5-4.5 DT (62).....        | 998.00    |                       |        |
| 16-105/3.5-5.6 DT (62).....       | 698.00    |                       |        |
| 18-55/3.5-5.6 DT SAM II (55)..... | 218.00    |                       |        |
| 18-135/3.5-5.6 (62).....          | 498.00    |                       |        |
| 18-250/3.5-6.3 DT (62).....       | 648.00    |                       |        |
| 24-70/2.8 Carl Zeiss (77).....    | 1,998.00  |                       |        |
| 28-75/2.8 (67).....               | 898.00    |                       |        |
| 55-200/4.0-5.6 DT (55).....       | 198.00    |                       |        |
| 55-300/4.5-5.6 DT (62).....       | 298.00    |                       |        |
| 70-200/2.8 G SSM II (77).....     | 2,998.00  |                       |        |
| 70-300/4.5-5.6 G.....             | 998.00    |                       |        |
| 70-400/4-5.6 G2.....              | 2,198.00  |                       |        |
| 1.4x Teleconverter.....           | 548.00    | 2x Teleconverter..... | 548.00 |

## Panasonic Lumix DMC-GM1 Mirrorless System Camera

- Venus Engine Image Processor • Micro 4/3 System
- 3.0" Touchscreen LCD • SDHC/SDXC Card Slot
- Full HD 1080i AVCHD Video at 60 fps • ISO 25600
- 5 fps Continuous Shooting • Built-In Wireless
- Highly Compact Magnesium Alloy Body
- Available in Black or Orange



with 12-32mm Lens #PADMCGM1\*

## Panasonic Lumix DMC-GX7 Mirrorless System Camera

- Micro 4/3 System • 3.0" Tilting LCD Touchscreen
- SDHC/SDXC Card Slot • 90° Tilting EVF
- Full HD 1080p AVCHD Video at 60 fps
- Focus Peaking and Magnification Windows
- Built-In Wireless and NFC Connectivity
- Available in Black or Silver



with 14-42mm II Lens #PADMCGX7K\*

## Panasonic Lumix DMC-GH4 4K Mirrorless System Camera

- DCI 4K 4096x2160 at 24p • Full HD up to 60p
- UHD 4K 3840x2160 at 30p/24p • 3.0" LCD
- Live View Finder • High-Speed 49-Point AF
- 4:2:2 8-Bit or 10-Bit HDMI Output
- Support for 59.94p, 23.98p, 50p, & 24p
- Magnesium Alloy, Weather-Sealed Body



Body Only #PADMCGH4\*

## PENTAX K-3 DSLR Camera

- PRIME III Image Processor • 3.2" LCD
- Pentax K Lens Mount • Dual SD Card Slots
- In-Camera Shake Reduction Stabilization
- Full HD 1080i/p Video Recording
- Continuous Shooting up to 8.3 fps
- Weather-Sealed Magnesium Alloy Body



Body Only #PEK3

## SONY Alpha A6000 Mirrorless System Camera

- 3.0" Tilting LCD • Uses Sony E-mount Lenses
- SDHC, SDXC, MS Pro Duo, MS PRO HG Duo
- Card Slot • Up to 11 fps Shooting • ISO 25600
- Full HD 1080i/p AVCHD Video at 24/60 fps
- Built-In Wi-Fi Connectivity with NFC
- Available in Black or Silver



Kit with 16-50mm OSS Lens #SOA6000\*

## SONY Alpha A7 Mirrorless System Camera

- Full Frame Exmor CMOS Sensor • 3.0" Tilttable LCD
- SDHC, SDXC, MS Pro Duo, MS PRO HG Duo
- Card Slot • Uses Sony E-mount Lenses
- Built-In Wi-Fi and NFC • Direct Access Interface
- Full 1080/60p with Uncompressed Output



Body Only #SOA7B

Kit with 28-70mm Lens #SOA7KB

## SONY Alpha SLT-A58 DSLR Camera

- 2.7" Tilting LCD • Uses Sony Alpha mount Lenses
- SDHC, SDXC, MS Pro Duo, MS PRO HG Duo
- Card Slot • Full HD 1080i/p Video at 60 or 24fps
- 5fps Full Resolution Continuous Shooting
- SteadyShot INSIDE Image Stabilization
- ISO 100-16000 with Noise Reduction



DT 18-55mm SAM II Lens #SOSLTA58K

## SONY a77 II DSLR Camera

- 3.0" 3-Way Tilting LCD • 12fps Shooting
- Uses Sony Alpha mount Lenses
- Full HD 1080p Video Recording at 60 fps
- SDHC, SDXC, MS Pro Duo, MS PRO HG Duo, XC-HG Duo Card Slot • ISO 25600
- Built-In Wi-Fi Connectivity with NFC



Body Only #SOA772

## LENSES AND FLASHES for DSLR & Mirrorless Cameras

### TAMRON

Six-Year Warranty

DI for both digital and film SLR cameras

DI-II for Digital SLRs Only DI-III for mirror-less cameras Only

Rebates Expire 2-28-15

|                       | C = Canon                         | N = Nikon | P = Pentax | SA = Sony Alpha | SE = Sony E Mount |               |                    |                  |
|-----------------------|-----------------------------------|-----------|------------|-----------------|-------------------|---------------|--------------------|------------------|
| ** Price After Rebate |                                   |           |            |                 |                   |               |                    |                  |
| DI-II                 | 60mm f/2.0 LD IF Macro (55ø)      |           |            |                 |                   | #TA6020D*     | C, N, SA           | 524.00           |
| DI                    | 90mm f/2.8 Macro (55ø)            |           |            |                 |                   | #TA9028M*     | C, N, P, SA        | 499.00           |
| DI                    | 90mm f/2.8 SP Macro VC USD (58ø)  |           |            |                 |                   | #TA9028V*     | C, N               | \$50 699.00**    |
| DI                    | 180mm f/3.5 LD IF Macro (72ø)     |           |            |                 |                   | #TA18035*     | C, N, SA           | 739.00           |
| DI-II                 | 10-24/3.5-4.5 (77ø)               |           |            |                 |                   | #TA102435*    | C, N, P, SA        | 499.00           |
| DI-II                 | 16-300/3.5-6.3 VC PZD (67ø)       |           |            |                 |                   | #TA1630035D*  | C, N, SA           | \$30 599.00**    |
| DI-II                 | 17-50/2.8 XR LD IF Asph. (67ø)    |           |            |                 |                   | #TA175028*    | C, N, P, SA        | 499.00           |
| DI-II                 | 17-50/2.8 XR VC LD IF Asph. (67ø) |           |            |                 |                   | #TA175028*Q   | C, N               | 649.00           |
| DI-II                 | 18-200/3.5-6.3 (62ø)              |           |            |                 |                   | #TA1820035*   | C, N, P, SA        | 199.00           |
| DI-III                | 18-200/3.5-6.3 VC (62ø)           |           |            |                 |                   | #TA1820035S*  | SE Black or Silver | 739.00           |
| DI-II                 | 18-270/3.5-6.3 VC PZD (62ø)       |           |            |                 |                   | #TA18270*     | C, N, SA           | \$50 399.00**    |
| DI                    | 24-70/2.8 VC USD (82ø)            |           |            |                 |                   | #TA247028*    | C, N, SA           | 1,199.00**       |
| DI                    | 28-75/2.8 XR (67ø)                |           |            |                 |                   | #TA287528*    | C, N, P, SA        | 499.00           |
| DI                    | 28-300/3.5-6.3 XR LD (62ø)        |           |            |                 |                   | #TA2830035XD* | C, P, SA           | 419.00           |
| DI                    | 28-300/3.5-6.3 VC PZD (67ø)       |           |            |                 |                   | #TA2830035D*  | C, N, SA           | 849.00           |
| DI                    | 70-200/2.8 LD IF Macro (77ø)      |           |            |                 |                   | #TA7020028M*  | C, N, P, SA        | 769.00           |
| DI                    | 70-200/2.8 SP VC USD (77ø)        |           |            |                 |                   | #TA7020028*   | C, N, SA           | \$100 1,399.00** |
| DI                    | 70-300/4-5.6 LD Macro (62ø)       |           |            |                 |                   | #TA70300M*    | C, N, P, SA        | 199.00           |
| DI                    | 70-300/4-5.6 VC USD (62ø)         |           |            |                 |                   | #TA70300*     | C, N, SA           | \$50 399.00**    |
| DI                    | 150-600/5-6.3 VC USD (95ø)        |           |            |                 |                   | #TA1506005*   | C, N, SA           | 1,069.00         |
|                       | 1.4x SP AF Pro Teleconverter      |           |            |                 |                   | #TA14XP*      | C, N               | 224.00           |
|                       | 2x SP AF Pro Teleconverter        |           |            |                 |                   | #TA2XP*       | C, N               | 254.00           |

### ZEISS Touit Mirrorless Lenses

These fully-compatible lenses with autofocus expand the capabilities of both the Sony NEX and Fujifilm X camera systems with outstanding optical quality.

|                   | Fujifilm X | Sony NEX   | Price  |
|-------------------|------------|------------|--------|
| 12mm f/2.8 (67ø)  | #ZET2812X  | #ZET2812E  | 999.00 |
| 32mm f/1.8 (52ø)  | #ZET1832X  | #ZET1832E  | 720.00 |
| 50mm f/2.8M (52ø) | #ZET5028MX | #ZET5028ME | 999.00 |

### Tokina

DX – for Digital SLRs Only

FX – Designed for full frame DSLRs

|                                  | Canon EOS     | Nikon AF      | Price  |
|----------------------------------|---------------|---------------|--------|
| FX 100mm f/2.8 Pro D Macro (52ø) | #T010028PCAF  | #T010028PNAF  | 399.00 |
| DX 10-17mm f/3.5-4.5 ATX Fisheye | #T0101735CAF  | #T0101735NAF  | 599.00 |
| DX 11-16mm f/2.8 Pro (77ø)       | #T0111628PDXC | #T0111628PDNX | 449.00 |
| DX 11-16mm f/2.8 Pro II (77ø)    | #T0111628PCII | #T0111628PNII | 525.00 |
| DX 12-28mm f/4.0 Pro (77ø)       | #T012284DXC   | #T012284DXN   | 489.00 |
| FX 16-28mm f/2.8 Pro             | #T01628FXC    | #T01628FXN    | 639.00 |
| FX 17-35mm f/4 Pro (82ø)         | #T01735F4FXC  | #T01735F4FXN  | 499.00 |

### SIGMA

DC – for Digital SLRs Only DG – Optimized for Digital SLRs DN – Designed for Mirrorless Cameras.

| H – HSM Model with Canon, Nikon, Sigma | Mount           | SKU #         | Rebate | Price    |
|----------------------------------------|-----------------|---------------|--------|----------|
| DC 4.5/2.8 EX Circular Fisheye HSM R   | C, N, P, SI, SA | #SI4528BX*    | \$100  | 799.00** |
| DC 8/3.5 EX Circular Fisheye R         | C, N, SI, SA    | #SI835*       | —      | 899.00   |
| DC 10/2.8 EX Circular Fisheye R        | C, N, P, SI, SA | #SI1028EXDC*  | —      | 649.00   |
| DC 15/2.8 EX Diagonal Fisheye R        | C, N, P, SA     | #SI1528DG*    | —      | 609.00   |
| DN 19/2.8 (46ø) Black or Silver        | MFT, SE         | #SI1928DN*    | —      | 199.00   |
| DG 20/1.8 EX DF RF Aspherical (82ø)    | C, N, SI, SA    | #SI2018*      | —      | 629.00   |
| DG 24/1.8 EX DF Asph. Macro (77ø)      | C, N, P, SI, SA | #SI2418M*     | —      | 549.00   |
| DG 28/1.8 EX DF Asph. Macro (77ø)      | C, P, SI, SA    | #SI2818M*     | —      | 449.00   |
| DN 30/2.8 (46ø) Black or Silver        | MFT, SE         | #SI3028DN*    | —      | 199.00   |
| DC 30/1.4 HSM (62ø)                    | C, N, P, SI, SA | #SI3014DCHSM* | —      | 499.00   |
| DC 35/1.4 HSM (67ø)                    | C, N, P, SI, SA | #SI3514*      | —      | 899.00   |
| DG 50/1.4 EX HSM (77ø) H               | C, N, SI, SA    | #SI5014*      | \$100  | 399.00** |
| DG 50/1.4 HSM (77ø) H                  | C, N, SI, SA    | #SI5014A*     | —      | 949.00   |
| DG 50/2.8 EX Macro (55ø)               | C, N, SI, SA    | #SI5028MDG*   | —      | 369.00   |
| DN 60/2.8 (46ø) Black or Silver        | MFT, SE         | #SI6028DN*    | \$30   | 209.00** |
| DG 70/2.8 EX Macro (62ø)               | C, N, P, SI     | #SI7028MDG*   | —      | 499.00   |
| DG 85/1.4 EX HSM (77ø)                 | C, N, P, SI, SA | #SI8514*      | —      | 969.00   |
| DG 105/2.8 EX Macro OS HSM (62ø)       | C, N, SI, SA    | #SI10528MDG*  | \$300  | 669.00** |
| DG 150/2.8 EX APO Macro OS HSM (72ø)   | C, N, SI, SA    | #SI15028AMO*  | —      | 1,099.00 |
| DG 180/2.8 EX APO Macro OS HSM (86ø)   | C, N, SI, SA    | #SI18028AMEO* | —      | 1,699.00 |
| DG 300/2.8 APO EX HSM (46ø Rear)       | C, N, P, SI, SA | #SI30028DG*   | —      | 3,399.00 |
| DG 500/4.5 APO EX HSM (46ø Rear)       | C, N, P, SI, SA | #SI50045DG*   | —      | 4,999.00 |
| DC 8-16/4.5-5.6 HSM                    | C, N, S         | #SI8164556*   | —      | 699.00   |
| DC 10-20/4.5-5.6 EX HSM (77ø)          | C, N, P, SI, SA | #SI102045D*   | \$80   | 399.00** |

C = Canon MFT = Micro 4/3 N = Nikon O = Olympus P = Pentax SI = Sigma SA = Sony Alpha SE = Sony E

| R – Rear Slip-in Gelatin Filter Slot  | Mount           | SKU #         | Rebate | Price      |
|---------------------------------------|-----------------|---------------|--------|------------|
| DC 10-20/3.5 EX HSM (82ø)             | C, N, P, SI, SA | #SI102035*    | —      | 649.00     |
| DG 12-24/4.5-5.6 EX Asph. HSM II      | C, N, SI, SA    | #SI122445*    | —      | 949.00     |
| DG 17-50/2.8 EX OS HSM (77ø)          | C, N, P, SI     | #SI175028*    | \$150  | 519.00**   |
| DC 17-70/2.8-4.0 OS Mac HSM TSC (72ø) | C, N, P, SI, SA | #SI1770284*   | —      | 499.00     |
| DC 18-35/1.8 HSM (72ø)                | C, N, P, SI, SA | #SI183518DC*  | —      | 799.00     |
| DC 18-200/3.5-6.3 OS II HSM (72ø)     | C, N, P, SI, SA | #SI1820035*   | —      | 499.00     |
| DC 18-200/3.5-6.3 OS Macro HSM (62ø)  | C, N, P, SI, SA | #SI1820035D*  | —      | 399.00     |
| DC 18-250/3.5-6.3 OS Macro HSM (62ø)  | C, N, P, SI, SA | #SI1825035M*  | \$200  | 349.00**   |
| DC 24-70/2.8 EX IF HSM (82ø)          | C, N, P, SI, SA | #SI247028*    | —      | 899.00     |
| DC 24-105/4.0 OS HSM (82ø)            | C, N, SI, SA    | #SI24105*     | —      | 899.00     |
| DC 50-150/2.8 EX APO OS HSM (77ø)     | N               | #SI5015028*   | —      | 989.00     |
| DG 50-500/4.5-6.3 APO OS HSM (95ø)    | C, N, P, SI, SA | #SI505004563* | \$150  | 1,509.00** |
| DG 70-200/2.8 EX APO OS HSM (77ø)     | C, N, P, SI, SA | #SI7020028*   | \$200  | 1,199.00** |
| DG 70-300/4-5.6 Macro (58ø)           | C, N, P, SI, SA | #SI703004*    | —      | 169.00     |
| DG 70-300/4-5.6 APO Macro (58ø)       | C, N, P, SI, SA | #SI703004DG*  | —      | 179.00     |
| DG 120-300/2.8 OS HSM (105ø)          | C, N, S         | #SI120300*    | —      | 3,599.00   |
| DG 120-400/4.5-5.6 APO OS HSM (77øR)  | C, P, SI        | #SI120400*    | —      | 899.00     |
| DG 150-500/5-6.3 APO OS HSM (86ø)     | C, N, P, SI, SA | #SI150500*    | \$200  | 869.00**   |
| DG 1.4x EX APO Tele-Converter         | C, N, S         | #SI14XDG*     | —      | 249.00     |
| DG 2x EX APO Tele-Converter           | C, N, S         | #SI2XDG*      | —      | 299.00     |

### SIGMA FLASHES

| DG EF-610 ST            | C, N, P, SI, SA | #SIEF610ST* | — | 165.00 |
|-------------------------|-----------------|-------------|---|--------|
| DG EF-610 Super Flash   | C, N, P, SI, SA | #SIEF610*   | — | 255.00 |
| DG EM-140 TTL Ringlight | C, N, P, SI, SA | #SIEM140DG* | — | 379.00 |



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## Canon Digital Rebel T5i DSLR

- 3.0" Vari-Angle Touchscreen LCD
- Uses Canon EF Lenses (1.6x factor)
- SD/SDHC/SDXC Card Slot
- STM Lens Support for Quiet AF in Movies
- Full HD 1080 Video with Continuous AF
- ISO 100-12800, Expandable to 25600



18 Mega Pixels

**Rebates Expire 1-31-15**

|                                             | Price  | Rebate       | Final Cost    |
|---------------------------------------------|--------|--------------|---------------|
| Kit with 18-55mm IS STM #CAEDRT5IK          | 849.99 | <b>\$100</b> | <b>749.99</b> |
| <b>T5i Kit</b> with 18-55mm IS II #CAEDRT5K | 549.99 | <b>\$500</b> | <b>499.99</b> |
| <b>T3i Kit</b> with 18-55mm IS #CAEDRT3IK   |        |              |               |

## Canon EOS-70D DSLR

- Dual Pixel CMOS AF with Live View
- DIGIC 5+ Image Processor
- SD/SDHC/SDXC Card Slot
- Uses Canon EF & EF-S Lenses
- 3.0" Vari-Angle Touchscreen
- 7 fps Continuous Shooting
- Built-In Wireless Connectivity
- Full HD 1080p Video



20 Mega Pixels

**Rebates Expire 1-31-15**

|                                                  | Price    | Rebate       | Final Cost      |
|--------------------------------------------------|----------|--------------|-----------------|
| Body Only #CAE70D                                | 1,199.00 | <b>\$200</b> | <b>999.00</b>   |
| Kit with 18-55mm STM #CAE70D1855                 | 1,349.00 | <b>\$200</b> | <b>1,149.00</b> |
| <b>EOS 60D</b> Body Only #CAE60D                 |          |              |                 |
| <b>EOS 60D Kit</b> with 18-135mm IS #CAE60D18135 |          |              |                 |

## Canon EOS-7D Mark II DSLR

- 3" Clear View II LCD • Native ISO 16000
- Dual Pixel CMOS AF with Live View
- Dual CF and SDHC/XC Card Slots
- Continuous 10 fps Shooting
- Built-In GPS Receiver & Digital Compass
- Full HD 1080p/60 Video & Movie Servo AF



20 Mega Pixels

|                                                | Price    | Rebate | Final Cost |
|------------------------------------------------|----------|--------|------------|
| Body Only #CAE7D2                              | 1,799.00 |        |            |
| <b>EOS 7D</b> Body Only #CAE7D                 |          |        |            |
| <b>EOS 7D Kit</b> with 18-135mm IS #CAE7D18135 |          |        |            |
| <b>EOS 7D Kit</b> with 28-135mm IS #CAE7D28135 |          |        |            |

## Canon EOS-6D DSLR

- Full-Frame CMOS Sensor • 3.0" LCD
- DIGIC 5+ Image Processor
- Uses Canon EF Lenses
- SD/SDHC/SDXC Card Slot
- Built-In Wi-Fi and GPS Connectivity
- Full HD 1080p with Manual Controls
- Extended ISO Range of 50-102400
- Up to 4.5 Full Resolution FPS
- Built-In HDR & Multiple Exposure Modes



20 Mega Pixels

**Rebates (Mail-in) Expire 1-31-15**

|                                     | Price    | Rebate       | Final Cost      |
|-------------------------------------|----------|--------------|-----------------|
| Body Only #CAE6D                    | 1,899.00 | <b>\$300</b> | <b>1,599.00</b> |
| Kit with 24-105mm 1/4 L #CAE6D24105 | 2,499.00 | <b>\$300</b> | <b>2,199.00</b> |

## Canon EOS-5D Mark III DSLR

- 3.2" Clear View High Resolution LCD
- DIGIC 5+ Image Processor
- 61-Point High Density AF
- Uses Canon EF Lenses
- Dual CF, SD Card Slots
- Full HD 1080/30p & 720/60p Formats
- Extended ISO Range (50-102400)
- Built-In HDR & Multiple Exposure Modes



22 Mega Pixels

**Rebates (Mail-in) Expire 1-31-15**

|                                     | Price    | Rebate       | Final Cost      |
|-------------------------------------|----------|--------------|-----------------|
| Body Only #CAE5D3*                  | 3,399.00 | <b>\$300</b> | <b>3,099.00</b> |
| Kit with 24-105mm L IS #CAE5D324105 | 3,999.00 | <b>\$300</b> | <b>3,699.00</b> |

## Canon EOS-1Dx DSLR

- Dual DIGIC 5+ Image Processors
- Magnesium Alloy Body
- Eye-Level Pentaprism Viewfinder
- 3.2" LCD Monitor
- Uses Canon EF Lenses
- Dual CF card slots
- 1920 x 1080 HD Video Capture
- Live View Still and Video Recording
- 61-Point High Density Auto Focus



18 Mega Pixels

**Rebates (Mail-in) Expire 1-31-15**

|                    | Price    | Rebate       | Final Cost      |
|--------------------|----------|--------------|-----------------|
| Body Only #CAE1DX* | 6,799.00 | <b>\$800</b> | <b>5,999.00</b> |

## Canon SLR Lenses and Flashes

**Rebates (Mail-in) Expire 1-31-15 — Call for Current Rebates & Promotions**

| EOS Flash System     | MAP    | Rebate | Final |
|----------------------|--------|--------|-------|
| 270EX II             | 169.99 |        |       |
| 320EX                |        |        |       |
| 430EX II             | 299.99 |        |       |
| 600EX-RT             | 549.99 |        |       |
| MR-14EX II Ringlight | 549.99 |        |       |
| MT-24EX Twin Flash   | 829.99 |        |       |



| EF-S Digital Lenses          | MAP    | Rebate       | Final         |
|------------------------------|--------|--------------|---------------|
| 24/2.8 STM (52ø)             | 149.99 |              |               |
| 60/2.8 USM Macro (52ø)       | 469.99 | <b>\$50</b>  | <b>419.99</b> |
| 10-18/4.5-5.6 IS STM (67ø)   | 299.00 |              |               |
| 10-22/3.5-4.5 USM (77ø)      | 649.99 | <b>\$50</b>  | <b>599.99</b> |
| 15-85/3.5-5.6 IS USM (72ø)   | 799.99 | <b>\$100</b> | <b>699.99</b> |
| 17-55/2.8 IS USM (67ø)       | 879.99 | <b>\$80</b>  | <b>799.99</b> |
| 17-85/4-5.6 IS USM (67ø)     | CALL   |              |               |
| 18-55/3.5-5.6 IS (58ø) II    | 199.99 |              |               |
| 18-135/3.5-5.6 IS (67ø)      | 499.99 |              |               |
| 18-200/3.5-5.6 IS (72ø)      | 699.99 |              |               |
| 55-250/4-5.6 IS USM II (58ø) | 249.99 |              |               |
| 55-250/4-5.6 IS STM II (58ø) | 299.99 |              |               |

Not compatible with full frame cameras

| EF Lenses                      | MAP      | Rebate       | Final           |
|--------------------------------|----------|--------------|-----------------|
| 20/2.8 USM (72ø)               | 539.99   | <b>\$50</b>  | <b>489.99</b>   |
| 24/2.8 IS USM (58ø)            | 599.99   | <b>\$50</b>  | <b>549.99</b>   |
| 28/1.8 USM (58ø)               | 509.99   | <b>\$60</b>  | <b>449.99</b>   |
| 28/2.8 IS USM (58ø)            | 549.99   | <b>\$50</b>  | <b>499.99</b>   |
| 35/2 IS USM (67ø)              | 599.99   | <b>\$50</b>  | <b>549.99</b>   |
| 40/2.8 STM Pancake (52ø)       | 199.99   | <b>\$50</b>  | <b>149.99</b>   |
| 50/1.8 II (52ø)                | 125.99   | <b>\$20</b>  | <b>105.99</b>   |
| 50/2.5 Macro (52ø)             | 299.99   | <b>\$30</b>  | <b>269.99</b>   |
| 50/1.4 USM (58ø)               | 399.99   | <b>\$50</b>  | <b>349.99</b>   |
| MP-E 65/2.8 1x-5x Macro (58ø)  | 1,049.00 | <b>\$100</b> | <b>949.99</b>   |
| 85/1.8 USM (58ø)               | 419.99   | <b>\$50</b>  | <b>369.99</b>   |
| 100/2 USM (58ø)                | 499.99   | <b>\$50</b>  | <b>449.99</b>   |
| 100/2.8 USM Macro (58ø)        | 599.99   | <b>\$50</b>  | <b>549.99</b>   |
| 400/4.0 DO IS II USM (52ø)     | 6,899.00 |              |                 |
| 24-105/3.5-5.6 IS STM (77ø)    | 599.00   |              |                 |
| 28-135/3.5-5.6 IS USM (72ø)    | CALL     |              |                 |
| 70-300/4-5.6 IS USM (58ø)      | 649.99   | <b>\$250</b> | <b>399.99**</b> |
| 70-300/4.5-5.6 DO IS USM (58ø) | 1,399.00 |              |                 |
| 75-300/4.0-5.6 III (58ø)       | 199.99   |              |                 |
| 75-300/4.0-5.6 III USM (58ø)   | 234.99   |              |                 |



| TSE MF Lenses | MAP      | Rebate | Final |
|---------------|----------|--------|-------|
| 17/4.0 L      | 2,249.00 |        |       |
| 24/3.5 L II   | 1,999.00 |        |       |
| 45/2.8        | 1,399.00 |        |       |
| 90/2.8        | 1,399.00 |        |       |

| EF "L" Lenses                | MAP       | Rebate       | Final           |
|------------------------------|-----------|--------------|-----------------|
| 14/2.8 USM II                | 2,249.00  | <b>\$100</b> | <b>2,149.00</b> |
| 24/1.4 II (77ø)              | 1,649.00  | <b>\$100</b> | <b>1,549.00</b> |
| 35/1.4 USM (72ø)             | 1,479.00  | <b>\$150</b> | <b>1,329.00</b> |
| 50/1.2 USM (72ø)             | 1,549.00  | <b>\$150</b> | <b>1,399.00</b> |
| 85/1.2 USM II (72ø)          | 2,099.00  | <b>\$100</b> | <b>1,999.00</b> |
| 100/2.8 IS USM Macro (67ø)   | 949.99    | <b>\$50</b>  | <b>899.99</b>   |
| 135/2.0 USM (72ø)            | 1,049.00  | <b>\$50</b>  | <b>999.00</b>   |
| 180/3.5 USM Macro (72ø)      | 1,499.00  | <b>\$50</b>  | <b>1,449.00</b> |
| 200/2.8 USM II (72ø)         | 779.99    | <b>\$30</b>  | <b>749.99</b>   |
| 200/2.0 IS USM (52ø)         | 5,999.00  |              |                 |
| 300/4.0 IS USM (77ø)         | 1,449.00  | <b>\$100</b> | <b>1,349.00</b> |
| 300/2.8 IS USM II (52ø rear) | 6,599.00  |              |                 |
| 400/5.6 USM (77ø)            | 1,339.00  | <b>\$100</b> | <b>1,239.00</b> |
| 400/2.8 IS II (52ø rear)     | 10,499.00 |              |                 |
| 500/4 IS USM II (52ø rear)   | 9,499.00  |              |                 |
| 600/4.0 IS II (52ø rear)     | 11,999.00 |              |                 |
| 8-15/4.0 Fish-eye USM        | 1,349.00  | <b>\$50</b>  | <b>1,299.00</b> |
| 16-35/4 IS USM (77ø)         | 1,199.00  | <b>\$100</b> | <b>1,099.00</b> |
| 16-35/2.8 USM II (82ø)       | 1,699.00  | <b>\$200</b> | <b>1,499.00</b> |
| 17-40/4.0 USM (77ø)          | 839.99    | <b>\$140</b> | <b>699.99</b>   |
| 24-70/4.0 IS USM (77ø)       | 999.99    | <b>\$200</b> | <b>799.99</b>   |
| 24-70/2.8 II USM (82ø)       | 2,099.00  | <b>\$150</b> | <b>1,949.00</b> |
| 24-105/4 IS USM (77ø)        | 1,149.00  |              |                 |
| 28-300/3.5-5.6 IS USM (77ø)  | 2,549.00  |              |                 |
| 70-200/4.0 USM (67ø)         | 709.99    | <b>\$100</b> | <b>609.99</b>   |
| 70-200/4.0 IS USM (77ø)      | 1,299.00  | <b>\$200</b> | <b>1,099.00</b> |
| 70-200/2.8 IS USM (77ø)      | 1,449.00  | <b>\$150</b> | <b>1,299.00</b> |
| 70-200/2.8 IS II USM (77ø)   | 2,299.00  | <b>\$150</b> | <b>2,149.00</b> |
| 70-300/4.0-5.6 IS USM (67ø)  | 1,449.00  | <b>\$100</b> | <b>1,349.00</b> |
| 100-400/4.5-5.6 IS USM (77ø) | 1,699.00  | <b>\$200</b> | <b>1,499.00</b> |

| EF Teleconverters | MAP    | Rebate | Final |
|-------------------|--------|--------|-------|
| 1.4x III          | 449.99 |        |       |
| 2x III            | 449.99 |        |       |

**\*\*with purchase of EOS-6D, 7D, 7D mkl, 70D, or 60D**

## Nikon D3300 DSLR

- EXPEED 4 Image Processor
- Full HD 1080p Video Recording
- 3.0" LCD • 5 fps Shooting
- Uses Nikon AF Lenses (1.5x factor)
- SD/SDHC/SDXC Card Slot
- Expandable ISO 25600
- Easy Panorama Mode and Guide Mode
- Nikon Inc. limited warranty included



|                                                   | Price     | Rebate       | Final Cost    |
|---------------------------------------------------|-----------|--------------|---------------|
| D3300 is available in Black, Gray or Red          |           |              |               |
| Kit with 18-55mm VR II #NID33001855*              | 646.95... | <b>\$150</b> | <b>496.95</b> |
| <b>D3200</b> Kit Black w/18-55mm VR #NID32001855* | 529.95... | <b>\$80</b>  | <b>449.95</b> |

## Nikon D5300 DSLR

- EXPEED 4 Image Processor
- Full HD 1080p Video at 60 fps
- 3.2" Vari-Angle LCD • ISO 100-25600
- Uses Nikon AF Lenses (1.5x factor)
- SD/SDHC/SDXC Card Slot
- Built-In Wi-Fi and GPS Connectivity
- Nikon Inc. limited warranty included



|                                                    | Price       | Rebate       | Final Cost    |
|----------------------------------------------------|-------------|--------------|---------------|
| D5300 18-55 Kit is available in Black, Gray or Red |             |              |               |
| Kit with 18-55mm VR II (B, G, R) #NID53001855*     | 896.95...   | <b>\$100</b> | <b>796.95</b> |
| Kit with 18-140mm VR (Black) #NID530018140         | 1,299.95... | <b>\$300</b> | <b>999.95</b> |
| <b>D5200</b> Kit with 18-55mm VR #NID52001855*     | 799.95...   | <b>\$150</b> | <b>649.95</b> |

## Nikon D7100 DSLR

- Magnesium Alloy Body
- Moisture Resistant
- EXPEED 3 Image Processor
- 1080p Full HD Video Capture
- Accepts Nikon AF Lenses (1.5x factor) • 3.2" LCD
- Dual SD/SDHC/SDXC Card Slots
- Built-In Flash with Commander Function
- Nikon Inc. limited warranty included



|                                       | Price       | Rebate       | Final Cost      |
|---------------------------------------|-------------|--------------|-----------------|
| D7100 Body Only #NID7100              | 1,199.95... | <b>\$200</b> | <b>999.95</b>   |
| Kit with 18-140mm VR DX #NID710018140 | 1,696.95... | <b>\$400</b> | <b>1,296.95</b> |

## Nikon D750 DSLR

- FX-Format (Full-Frame) CMOS Sensor
- Uses Nikon AF Lenses • 3.2" Tilting LCD
- EXPEED 4 Image Processor
- SD/SDHC/SDXC Card Slot
- Built-In Wi-Fi Connectivity
- Full HD 1080p Video Recording at 60 fps
- Nikon Inc. limited warranty included



|                                              | Price       | Rebate       | Final Cost      |
|----------------------------------------------|-------------|--------------|-----------------|
| Body Only #NID750                            | 2,296.95... |              |                 |
| Kit with 24-120mm VR #NID75024120            | 3,596.95... | <b>\$600</b> | <b>2,996.95</b> |
| <b>D610</b> Body Only #NID610                | 1,996.95... | <b>\$500</b> | <b>1,496.95</b> |
| <b>D610</b> Kit with 24-85mm VRt #NID6102485 | 2,596.95... | <b>\$700</b> | <b>1,896.95</b> |

## Nikon D810 DSLR

- FX-Format CMOS Sensor
- EXPEED 4 Image Processor
- Optical Low-Pass Filter • 3.2" LCD
- CF & SD Dual Card Slots
- Nikon F Mount Lens Mount
- Expandable Sensitivity to ISO 51200
- Full HD 1080p Video at 60/30/24 fps
- External Mic and Headphone Inputs
- Continuous Shooting to 5 fps in FX Mode
- Nikon Inc. limited warranty included



|                        | Price       | Rebate       | Final Cost      |
|------------------------|-------------|--------------|-----------------|
| D810 Body Only #NID810 | 3,296.95... | <b>\$300</b> | <b>2,996.00</b> |

## Nikon D4s DSLR

- FX-format (full-frame) CMOS Sensor
- 14-Bit RAW Files & 12-Bit RAW S Format • 3.2" LCD
- Full HD 1080p Video at 60 fps
- EXPEED 4 Image Processor
- Compatible with Most Nikkor Optics
- 11 fps Shooting for 200 Shots with AE/AF • ISO 50-409600
- CF Type 1 & XQD Compatible
- 1000 Base-T Gigabit Wired LAN Support
- Nikon Inc. limited warranty included



|                      | Price    | Rebate | Final Cost |
|----------------------|----------|--------|------------|
| D4s Body Only #NID4S | 6,496.95 |        |            |

## Nikon SLR Lenses and Flashes

Rebates Expire 1-31-15 — Call for Current Rebates and Promotions

### Nikon Instant Savings on Lenses with purchase of any Nikon DSLR

| AF Flashes                      | Price  | Rebate | Final |
|---------------------------------|--------|--------|-------|
| SB-300                          | 146.95 |        |       |
| SB-500                          | 246.95 |        |       |
| SB-700                          | 326.95 |        |       |
| SB-910                          | 546.95 |        |       |
| R1 Wireless Twin Flash          |        |        |       |
| R1C1 Wireless Twin Flash System |        |        |       |

| DX ED-IF Lenses for Digital Only  | Price  | Rebate          | Final         |
|-----------------------------------|--------|-----------------|---------------|
| 10.5/2.8 Fish-Eye                 |        |                 |               |
| 35/1.8 G AF-S (520)               | 196.95 |                 |               |
| 40/2.8 G AF-S Micro (520)         | 276.95 |                 |               |
| 85/3.5 G ED VR Micro              | 526.95 | <b>\$100</b>    | <b>426.95</b> |
| 10-24/3.5-4.5 G AF-S (770)        |        |                 |               |
| 12-24/4 G AF-S (770)              |        |                 |               |
| 16-85/3.5-5.6 G AF-S VR (670)     |        |                 |               |
| 17-55/2.8 G AF-S (770)            |        |                 |               |
| 18-55/3.5-5.6 G AF-S II (520)     |        |                 |               |
| 18-55/3.5-5.6 G AF-S VR (520)     | 196.95 |                 |               |
| 18-55/3.5-5.6 G AF-S VR II (520)  | 246.95 |                 |               |
| 18-105/3.5-5.6 G AF-S VR *        | 396.95 |                 |               |
| 18-140/3.5-5.6 G AF-S VR **       | 496.95 | <b>\$200 **</b> | <b>296.95</b> |
| 18-200/3.5-5.6 G AF-S VR II       | 596.95 |                 |               |
| 18-300/3.5-5.6 G AF-S ED VR (770) | 996.95 |                 |               |
| 18-300/3.5-6.3 G AF-S ED VR (670) | 896.95 |                 |               |
| 55-200/4-5.6 G AF-S (520)         |        |                 |               |
| 55-200/4-5.6 G AF-S VR            | 246.95 | <b>\$100</b>    | <b>146.95</b> |
| 55-300/4.5-5.6 G AF-S VR          | 396.95 | <b>\$200</b>    | <b>196.95</b> |

| D-Type AF Lenses             | Price  | Rebate | Final |
|------------------------------|--------|--------|-------|
| 14/2.8 D ED                  |        |        |       |
| 16/2.8 D (390) with Hood     |        |        |       |
| 20/2.8 D (620)               |        |        |       |
| 20/1.8 G AF-S ED (770)       | 796.95 |        |       |
| 24/2.8 D (520)               |        |        |       |
| 24/1.4 G AF-S ED (770)       |        |        |       |
| 24/3.5 D ED PC-E (770)       |        |        |       |
| 28/1.8 G AF-S (670)          | 696.95 |        |       |
| 28/2.8 D (520)               |        |        |       |
| 35/2.0 D (520)               |        |        |       |
| 35/1.4 G AF-S ED (670)       |        |        |       |
| 35/1.8 G AF-S ED (580)       | 596.95 |        |       |
| 45/2.8 D ED PC-E Micro (770) |        |        |       |
| 50/1.8 D (520)               |        |        |       |
| 50/1.8 G AF-S (580)          | 216.95 |        |       |



| D-Type AF Lenses                    | Price    | Rebate       | Final          |
|-------------------------------------|----------|--------------|----------------|
| 50/1.4 D (520)                      |          |              |                |
| 50/1.4 G AF-S (580)                 |          |              |                |
| 58/1.4 G AF-S (720)                 | 1,696.95 |              |                |
| 60/2.8 D Micro (620) (1:1)          |          |              |                |
| 60/2.8 G AF-S ED Micro (620)        |          |              |                |
| 85/1.8 G AF-S (670)                 | 496.95   |              |                |
| 85/1.4 D IF (770)                   |          |              |                |
| 85/1.4 G AF-S (770)                 |          |              |                |
| 85/2.8 PC-E Micro (770)             |          |              |                |
| 105/2.8 G AF-S ED-IF VR Micro (620) |          |              |                |
| 105/2.0 DC D with Hood (720)        |          |              |                |
| 180/2.8 D ED-IF (720)               |          |              |                |
| 200/4 D ED-IF Micro with Case (620) |          |              |                |
| 200/2 G AF-S ED-IF VR II (520)      |          |              |                |
| 300/4.0 D AF-S ED-IF (770)          |          |              |                |
| 300/2.8 G AF-S VR (520-R)           |          |              |                |
| 400/2.8 G AF-S VR ED (520)          |          |              |                |
| 500/4.0 G AF-S VR ED (520)          |          |              |                |
| 600/4.0 G AF-S VR ED (520)          |          |              |                |
| 14-24/2.8 G AF-S ED-IF              | 1,996.95 |              |                |
| 16-35/4.0 G AF-S ED VR (770)        | 1,256.95 |              |                |
| 17-35/2.8 D AF-S ED-IF (770)        |          |              |                |
| 18-35/3.5-4.5 AF-S G ED (770)       | 746.95   |              |                |
| 24-70/2.8 G AF-S ED-IF (770)        | 1,886.95 |              |                |
| 24-85/2.8-4.0 D IF (720)            |          |              |                |
| 24-85/3.5-4.5 G AF-S ED VR          | 596.95   | <b>\$100</b> | <b>496.95</b>  |
| 24-120/4.0 G AF-S ED VR (770)       | 1,296.95 |              |                |
| 28-300/3.5-5.6 G AF-S ED VR         | 1,046.95 | <b>\$250</b> | <b>796.95^</b> |
| 70-200/4.0 G AF-S ED VR (670)       | 1,396.95 |              |                |
| 70-200/2.8 G AF-S ED-IF VR II (770) | 2,396.95 |              |                |
| 70-300/4.0-5.6 G (620)              |          |              |                |
| 70-300/4.5-5.6 G-AFS VR             | 586.95   |              |                |
| 80-200/2.8 D with Collar (770)      |          |              |                |
| 80-400/4.5-5.6 G AF-S ED VR (770)   | 2,696.95 |              |                |
| 200-400/4 G AF-S ED VR II (520)     |          |              |                |
| TC-14E III (1.4x) Teleconverter     |          |              |                |
| TC-17E II (1.7x) Teleconverter      |          |              |                |
| TC-20E III (2x) Teleconverter       |          |              |                |

\*\* When purchased with a D3200, D3300, D5200, D5300, D7100

^ When Purchased with D7100, D610, D750, DF, D810 D4s



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- 3.0" LCD • Full HD 1080/60p Video
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- 6.1-30.5mm f/1.8-2.8 (35mm equiv: 28-140mm) • SD/SDHC/SDXC Card Slot
- Enhanced Wi-Fi Capabilities
- Continuous Shooting at 9.3 fps

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12 Mega Pixels

## FUJIFILM X30

- 2.8" LCD • Die-Cast Magnesium Alloy
- Full HD 1080 Video at 60fps
- 4x Optical Zoom • ISO 100-12800
- 7.1-28.4mm f/2-2.8 (35mm equiv: 28-112mm) • SD/SDHC/SDXC Card Slot
- Film Simulation and Advanced Filters

Black or Silver #FUX30\*



12 Mega Pixels

## Nikon Coolpix A

- 3.0" LCD • No Optical Low-Pass Filter
- Manual Focus Ring Adjustment
- 18.5mm f/2.8 (35mm equiv: 28mm)
- SD/SDHC/SDXC Card Slot
- Full HD 1080p Video with Stereo Sound
- Capture Photos in RAW Format

Black or Silver #NICPA\*..... **1,099.95**



16 Mega Pixels

## OLYMPUS Stylus XZ-2 iHS

- 3.0" Swivelling Touchscreen LCD
- 4x Optical Zoom • 2x Digital Zoom
- 6-24mm f/1.8-2.5 (35mm equiv: 27-108mm) Lens • 11 Art Filters
- SD/SDHC/SDXC Card Slot
- Full HD 1080p Video Recording

#OLXZ2B



12 Mega Pixels

## Panasonic Lumix DMC-LX7

- 3.0" LCD • SDHC/SDXC Card Slot
- Full HD 1080 Video Recording
- 3.8x Optical Zoom • 7.5x Digital Zoom
- 4.7-17.7mm f/1.4-2.3 (35mm equiv: 24-90mm) Leica Vario-Summilux Lens
- RAW and RAW+JPEG Recording Options

Black or White #PADMCLX7\*



10 Mega Pixels

## SONY CyberShot DSC-RX100 III

- 3.0" Multi-Angle Xtra Fine LCD
- 2.9x Optical Zoom • 11x Digital Zoom
- 8.8-25.7mm f/1.8-2.8 (35mm equiv: 24-70mm) Carl Zeiss Vario-Sonnar T\* Lens
- MS Pro Duo/Pro HG-Duo, SDHC/SDXC Card Slot • Full HD Video • Built-In Wi-Fi with NFC

#SDSCRX100M3



20 Mega Pixels

## ▶ MEMORY CARDS

### CF Compact Flash

|       | Delkin |        |        |        | Kingston      |               | Lexar  |        | Sandisk     |                |                    |
|-------|--------|--------|--------|--------|---------------|---------------|--------|--------|-------------|----------------|--------------------|
|       | 500x   | 700x   | 1000x  | 1050x  | Ultimate 266x | Ultimate 600x | 800x   | 1066x  | Ultra 50MBs | Extreme 120MBs | Extreme Pro 160MBs |
| 16GB  | 29.95  | 37.95  | 49.95  | —      | 21.95         | 33.95         | 40.95  | 48.95  | 49.95       | 48.00          | 69.95              |
| 32GB  | 44.50  | 54.99  | 74.95  | 89.95  | 30.95         | 49.95         | 54.95  | 79.99  | 94.99       | 66.89          | 99.95              |
| 64GB  | 84.50  | 72.50  | 99.95  | 159.95 | 49.95         | —             | 74.95  | 143.65 | —           | 94.95          | 199.50             |
| 128GB | —      | 194.95 | 214.00 | 254.95 | —             | —             | 194.95 | 249.98 | —           | 210.00         | 349.99             |
| 256GB | —      | —      | —      | —      | —             | —             | 399.95 | 543.91 | —           | —              | 649.95             |
| 512GB | —      | —      | —      | —      | —             | —             | 899.00 | —      | —           | —              | —                  |

### CFast 2.0 High Speed

High-speed file transfer to meet the demands of broadcast, cinema, and photography.

|                 | SANDISK         | LEXAR                         |
|-----------------|-----------------|-------------------------------|
| 60GB (450mb/s)  | <b>\$399.95</b> | 32GB ..... <b>\$179.99</b>    |
| 128GB (515mb/s) | <b>\$799.95</b> | 128GB ..... <b>\$879.99</b>   |
|                 |                 | 64GB ..... <b>\$399.99</b>    |
|                 |                 | 256GB ..... <b>\$1,299.99</b> |

### XQD High-Speed for Nikon D4

|      | Lexar              | Sony            |
|------|--------------------|-----------------|
|      | Professional 1333x | N Series 125MBs |
| 32GB | 222.49             | 99.95           |
| 64GB | 349.95             | 163.50          |

### SDHC Secure Digital High Capacity

|      | Delkin      | Kingston               | Sandisk          |               |
|------|-------------|------------------------|------------------|---------------|
|      | Pro Class10 | Micro Class 4 Mobility | Standard Class 4 | Micro Class 4 |
| 4GB  | 7.95        | —                      | 4.95             | 5.95          |
| 8GB  | 9.95        | 8.95                   | 5.95             | 6.95          |
| 16GB | 10.95       | 9.95                   | 8.45             | 8.95          |
| 32GB | 17.95       | 20.46                  | 15.95            | 16.95         |

### UHS1 Ultra High Speed

|       | Lexar                                    |        | Sandisk    |                   | Sony        |                |
|-------|------------------------------------------|--------|------------|-------------------|-------------|----------------|
|       | Class 10 400x                            | 600x   | Micro 633x | Extreme Pro 95MBs | Micro 80MBs | Class 10 94MBs |
| 8GB   | 9.95                                     | —      | 18.62      | —                 | —           | 13.49          |
| 16GB  | 14.95                                    | 19.95  | 23.95      | 33.95             | 27.95       | 19.95          |
| 32GB  | 23.95                                    | 28.95  | 34.95      | 37.95             | 39.74       | 33.50          |
| 64GB  | 36.95                                    | 46.35  | 66.95      | 74.95             | 74.95       | 66.95          |
| 128GB | 79.95                                    | 93.95  | 139.95     | —                 | —           | 126.95         |
| 256GB | —                                        | 260.95 | —          | —                 | —           | —              |
| 512GB | Note: Not all devices support SDXC cards |        |            |                   |             |                |

### UHS1 Speed Class 3 (U3)

|       | Delkin | Kingston | Sandisk       | Sony              |
|-------|--------|----------|---------------|-------------------|
|       | 633x   | 90MBs    | Extreme 60MBs | Extreme Pro 90MBs |
| 8GB   | 17.95  | —        | —             | —                 |
| 16GB  | 31.95  | 22.95    | 14.99         | —                 |
| 32GB  | 38.95  | 39.95    | 29.45         | 39.95             |
| 64GB  | 84.95  | 79.95    | 52.45         | 77.95             |
| 128GB | —      | —        | —             | 189.95            |
| 256GB | —      | —        | —             | 359.95            |
| 512GB | —      | —        | —             | 729.00            |

### UHS2

|       | Delkin    | Lexar        | Sandisk      |
|-------|-----------|--------------|--------------|
|       | U3 280MBs | 1000x 150MBs | 2000x 300MBs |
| 8GB   | —         | —            | —            |
| 16GB  | 64.95     | 29.95        | 64.99        |
| 32GB  | 114.95    | 49.95        | 99.95*       |
| 64GB  | —         | 89.95        | 151.88*      |
| 128GB | —         | 149.95       | —            |
| 256GB | —         | 499.95       | —            |

\* with UHS-II Reader



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You're On Steady Ground

## Tripods with Ball Head

- Detachable Leg and Column Form Monopod
- Non-Rotating Twist-Lock Legs
- Grooved center column • Bubble Level/s
- Rubber Feet & Retractable Metal Spikes
- Included padded carry bag



| Model                            | Ball Head | Load Capacity | Max. Height | Folded | Weight | SKU #         | Price    |
|----------------------------------|-----------|---------------|-------------|--------|--------|---------------|----------|
| <b>Anodized Aluminum Tripods</b> |           |               |             |        |        |               |          |
| AT-3421                          | BA-106T   | 6.6 lb        | 59"         | 16.8"  | 2.7 lb | #OBAT3421106T | \$159.95 |
| AT-3431                          | BA-108T   | 8.8 lb        | 61.3"       | 17.3"  | 2.8 lb | #OBAT3431108T | \$199.95 |
| AT-3441                          | BA-111T   | 11 lb         | 63.4"       | 17.5"  | 3.5 lb | #OBAT3441111T | \$249.95 |
| AT-3451                          | BA-113T   | 13.2 lb       | 65.5"       | 18.1"  | 3.6 lb | #OBAT3451113T | \$289.95 |
| AT-3461                          | BA-117T   | 17.6 lb       | 67.1"       | 18.9"  | 4.5 lb | #OBAT3461117T | \$299.95 |

|                                |         |         |       |       |        |               |          |
|--------------------------------|---------|---------|-------|-------|--------|---------------|----------|
| <b>6x Carbon Fiber Tripods</b> |         |         |       |       |        |               |          |
| CT-3431                        | BE-108T | 8.8 lb  | 59.5" | 17"   | 2.5 lb | #OBCT3431108T | \$399.95 |
| CT-3451                        | BE-113T | 13.2 lb | 61.3" | 17.1" | 2.5 lb | #OBCT3451113T | \$479.95 |
| CT-3461                        | BE-117T | 17.6 lb | 64.5" | 17.4" | 3.1 lb | #OBCT3461117T | \$479.95 |
| CT-3481                        | BE-126T | 26.4 lb | 68"   | 18.9" | 3.8 lb | #OBCT3481126T | \$499.95 |
| CT-3521                        | BE-106T | 6.6 lb  | 56.4" | 14.8" | 2.4 lb | #OBCT3521106T | \$379.95 |
| CT-3531                        | BE-108T | 8.8 lb  | 60.8" | 15.5" | 2.5 lb | #OBCT3531108T | \$399.95 |
| CT-3551                        | BE-113T | 13.2 lb | 62.4" | 16"   | 2.6 lb | #OBCT3551113T | \$469.95 |
| CT-3561                        | BE-117T | 17.6 lb | 64.3" | 16.8" | 3.1 lb | #OBCT3561117T | \$349.95 |
| CT-3581                        | BE-126T | 26.4 lb | 67.9" | 16.9" | 3.9 lb | #OBCT3581126T | \$369.95 |



## BATTERY GRIPS

- Accepts 2 lithium-ion batteries to effectively double the camera's battery life (Batteries not included)
- The included AA battery holder allows you to use 6 AA batteries for added convenience (except BG-N3)
- Alternate shutter release button, main and sub command dials, and an AE-L/AF-L button are provided to facilitate shooting in a vertical orientation

|                                    |         |                |         |
|------------------------------------|---------|----------------|---------|
| for Canon 5D Mark III .....        | BG-C9   | #VEBGC9.....   | \$99.95 |
| for Canon 5D Mark II .....         | BG-C2   | #VEBGC22 ..... | \$69.95 |
| for Canon 7D .....                 | BG-C4   | #VEBGC4.....   | \$64.95 |
| for Canon 70D .....                | BG-C10  | #VEBGC10.....  | \$84.95 |
| for Canon 60D .....                | BG-C6   | #VEBGC6.....   | \$69.95 |
| for Canon T5i, T4i, T3i, T2i ..... | BG-C5.2 | #VEBGC52 ..... | \$67.95 |
| for Nikon D7100 .....              | BG-N11  | #VEBGN11 ..... | \$89.95 |
| for Nikon D5300 .....              | BG-N13  | #VEBGN13 ..... | \$59.95 |
| for Nikon D3300, D3200 .....       | BG-N12  | #VEBGN12.....  | \$59.95 |
| for Nikon D600, D610 .....         | BG-N10  | #VEBGN10.....  | \$79.95 |
| for Nikon D800, D800E .....        | BG-N7   | #VEBGN7.....   | \$89.95 |

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## lighting equipment and accessories

### Astral Extreme 2 Monolight Portrait Kit

#### Kit Includes:

- 2 x Astral Extreme AS-X-400 Monolight
- 10' Air-Cushioned Light Stand
- Luxbanx Small 36" Octagonal Softbox
- Fabric Grid 36" for Luxbanx
- Speed Ring
- Convertible 45" Umbrella - White Satin with Removable Black Backing

#IMASX4002LK.....\$1,124.50

### Parabox Speedlight Kit

- 24x36" Parabox Softbox • Umbrella Bracket with Adjustable Shoe
- 10' Light Stand • Adjustable Locking Triple Flash Adapter

#IMPBSB2436K.....\$218.84

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|                                                    | 52mm  | 58mm  | 67mm  | 72mm   | 77mm   |
|----------------------------------------------------|-------|-------|-------|--------|--------|
| UV, Skylight (1B) HMC                              | 16.50 | 21.50 | 27.50 | 29.95  | 36.20  |
| UV, Skylight (1B) Super HMC                        | 27.89 | 26.49 | 33.00 | 52.95  | 44.99  |
| Linear Polarizer                                   | 16.99 | 25.00 | 38.85 | 36.85  | 44.90  |
| Circular Polarizer                                 | 23.95 | 29.95 | 34.95 | 42.95  | 38.90  |
| Circular Polarizer HMC                             | 39.95 | 49.00 | 55.90 | 69.00  | 104.90 |
| "Moose" Warm Circular Polarizer                    | 35.75 | 39.55 | 53.90 | 55.65  | 91.50  |
| K2 Yel, X0 Yel/Gm, Gm X1, Or G, Red 25A HMC        | 23.95 | 28.35 | 41.95 | 46.35  | 60.90  |
| Close Up Set (+1, +2, +4)                          | 39.99 | 47.35 | 53.00 | 63.00  | 68.00  |
| Close-Up Set HMC (+1, +2, +4)                      | 52.68 | 64.88 | 73.00 | 100.68 | 145.35 |
| Intensifier - Blue, Green Field, Enhancement (Red) | 34.68 | 39.95 | 55.08 | 60.00  | 71.50  |
| Neutral Density 2x, 4x, 8x HMC                     | 23.88 | 19.95 | 36.95 | 30.99  | 34.80  |
| Star 6, Star 8                                     | 16.89 | 22.50 | 43.35 | 49.90  | 46.68  |

### ► heliopan

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|                                                   | 55mm   | 58mm   | 67mm   | 72mm   | 77mm   |
|---------------------------------------------------|--------|--------|--------|--------|--------|
| Skylight (1B), UV                                 | 39.99  | 41.99  | 62.99  | 77.99  | 89.99  |
| Skylight (1B), UV SH-PMC                          | 72.99  | 78.99  | 103.99 | 131.99 | 157.99 |
| Circular Polarizer, Slim Circular Polarizer       | 115.99 | 121.99 | 151.99 | 180.99 | 195.99 |
| Circular Polarizer SH-PMC, Slim Circ. Pol. SH-PMC | 161.99 | 171.99 | 214.99 | 242.99 | 275.99 |
| #5, #8, #11, #13, #15, #22, 81A, 81B, 81C         | 49.99  | 51.99  | 78.99  | 96.99  | 108.99 |
| Digital Filter                                    | 176.99 | 180.99 | 222.99 | 261.99 | 301.99 |

## ► FILM – B&W AND COLOR

### COLOR PRINT

### COLOR SLIDE

### BLACK & WHITE PRINT

#### FUJIFILM

#### Kodak

#### FUJIFILM

#### ILFORD

#### Infrared

|                        |                          |                            |                          |
|------------------------|--------------------------|----------------------------|--------------------------|
| <b>Superia</b>         | <b>Ektar</b>             | <b>Provia</b>              | <b>Velvia RVP</b>        |
| CA 200 135-24.....2.69 | 100 135-36.....5.50      | RDP 100F 135-36.....9.95   | Pro 50 135-36.....11.69  |
| CH 400 135-24.....3.49 | 100 120 Roll.....4.90    | 135-36PP (5).....49.75     | Pro 50 120 Roll.....8.55 |
| CH 400 135-36.....3.99 | <b>Portra</b>            | RDP 100F 120 Roll.....7.19 | 100 135-36.....10.64     |
| CZ 800 135-24.....3.99 | 160 135-36.....6.99      | 135-36PP (5).....35.95     | 100 120 Roll.....7.69    |
| <b>Pro</b>             | 160 120 Roll.....5.50    |                            |                          |
| 400H 135-36.....10.29  | 160 220 Roll.....14.70   |                            |                          |
| 400H 120 Roll.....7.59 | 160 220 PP (5).....73.50 |                            |                          |
|                        | 400 135-36.....7.35      |                            |                          |
|                        | 400 120 Roll.....5.79    |                            |                          |
|                        | 400 220 Roll.....15.19   |                            |                          |
|                        | 400 220 PP (5).....75.95 |                            |                          |
| <b>Gold Max</b>        |                          |                            |                          |
| GC 400 135-24.....2.09 | 800 135-36.....9.99      |                            |                          |
| GC 400 135-36.....3.29 | 800 120 Roll.....8.98    |                            |                          |

### PROCESSING MAILERS

#### FUJIFILM

#### AI

#### Slide

#### Print C41

#### Print C41

#### Print C41

#### Pan F+ 50

#### Pan F+ 50

#### FP4+ 125

#### HP5+ 400

#### HP5+ 400

#### Delta Pro

#### 100 135-36

#### 100 120 Roll

#### 400 135-36

#### 400 120 Roll

#### 3200 135-36

#### 3200 120 Roll

#### XP-2 Super

#### 400 135-36

#### 400 120 Roll

#### SFX 200 135-36

#### SFX 200 120 Roll

#### FP4+ 125

#### HP5+ 400

#### HP5+ 400

#### Delta Pro

#### 100 135-36

#### 100 120 Roll

#### 400 135-36

#### 400 120 Roll

#### 3200 135-36

#### 3200 120 Roll

#### XP-2 Super

#### 400 135-36

#### 400 120 Roll



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(Cont'd from page 96)

**Slik Pro 924  
CF 4-Section  
Carbon Fiber**



**Sirui ET-2204  
Carbon Fiber**

The legs are held in place with twist locks, and each can spread independently. Folded, the Pro 924 CF is 21.8 inches. Estimated Street Price: \$599.

Contact: [www.kenkotokinausa.com](http://www.kenkotokinausa.com)

The only tripod with a built-in head is the **Sirui ET-2204 Carbon Fiber model**. It comes with an integral E-20 ballhead, and it can support 26.5 pounds. The Sirui extends to 57 inches, and the four section legs are held in place with flip locks. Collapsed, the Sirui measures 17 inches, and the legs spread independently. The integral ballhead has a quick-release plate. Estimated Street Price: \$379.

Contact: [www.graph.com](http://www.graph.com)

OP

#### ► MORE On The Web

Go to [outdoorphotographer.com](http://outdoorphotographer.com) and click on the Gear section to see more articles about equipment and accessories to help you take your landscape photos to the next level.

(Cont'd from page 85)

### A Sampling of 4x5 View Cameras

|                                                            |          |
|------------------------------------------------------------|----------|
| Arca-Swiss F-Classic 4x5 View Camera                       | \$3,707  |
| Arca-Swiss F-Classic C 4x5 View Camera                     | \$3,707  |
| Arca-Swiss F-Field C 4x5 View Camera                       | \$4,469  |
| Arca-Swiss F-Metric 4x5 View Camera                        | \$4,896  |
| Arca-Swiss F-Metric C View Camera                          | \$4,896  |
| Arca-Swiss 4x5 F-Line Misura View Camera                   | \$5,277  |
| Arca-Swiss M-Monolith 4x5 View Camera                      | \$7,767  |
| Cambo SC-2 Basic 4x5 Monorail View Camera                  | \$1,799  |
| Cambo Ultra 45 View Camera (supports DSLR mounting blocks) | \$5,299  |
| Cambo Ultima 45D 4x5 View Camera                           | \$5,899  |
| Cambo Ultima 45 4x5 View Camera                            | \$6,199  |
| Horseman LX-45 4x5 Monorail View Camera                    | \$5,344  |
| Linhof Kardan RE View Camera with Rail (entry-level)       | \$2,802  |
| Linhof 4x5 Kardan GT Camera                                | \$4,719  |
| Linhof 4x5 Technikardan 45a Camera                         | \$7,139  |
| Linhof 4x5 Kardan Master GTL-AMS Camera                    | \$10,739 |
| Toyo-View 45CX 4x5 View Camera                             | \$786    |
| Toyo-View 4x5 45GI View Camera                             | \$4,439  |
| Toyo-View 4x5 45GX View Camera                             | \$5,122  |
| Toyo-View 4x5 VX125-R Camera                               | \$5,464  |
| Toyo-View 4x5 VX125 Camera                                 | \$5,920  |

### A Sampling of 4x5 Field Cameras

|                                                               |          |
|---------------------------------------------------------------|----------|
| Arca-Swiss F-Metric C 4x5 Field Camera                        | \$5,364  |
| Linhof 4x5 Master Technika "Classic" Rangefinder Field Camera | \$9,411  |
| Linhof 4x5 Master Technika 3000 Metal Field Camera            | \$10,301 |
| Toyo-View 4x5 45CF Field Camera                               | \$983    |
| Toyo-View 45AX Metal Field Camera                             | \$2,152  |
| Toyo-View 4x5 45AI Metal Field Camera                         | \$2,504  |
| Wista Field-45DX Field Camera                                 | \$2,909  |
| Wista Field-45SW Field Camera                                 | \$2,979  |
| Wista Field-45DX Field Camera                                 | \$4,389  |
| Wista Technical 45SP Metal Field Camera                       | \$5,089  |
| Wista Technical 45RF Rangefinder 4x5 Metal Field Camera       | \$5,949  |

### A Sampling of Designed-for-Digital View Cameras

|                                                              |         |
|--------------------------------------------------------------|---------|
| Arca-Swiss M-Line Camera for Canon EOS DSLR                  | \$4,338 |
| Arca-Swiss M-Line Camera for Nikon F DSLR                    | \$4,338 |
| Arca-Swiss M-Line Camera for MF                              | \$5,278 |
| Cambo Ultra 23D 2x3" View Camera (Canon/Nikon w/adaptor)     | \$5,899 |
| Horseman VCC PRO View Camera Converter for Canon             | \$2,810 |
| Horseman VCC PRO View Camera Converter for Nikon             | \$2,810 |
| Horseman VCC PRO View Camera Converter for Sony E            | \$2,810 |
| Horseman LD Pro View Camera (for Canon/Nikon DSLR)           | \$5,024 |
| Horseman Axella View Camera Body for Canon EOS DSLR          | \$6,920 |
| Horseman Axella View Camera Body for Nikon F-mount DSLR      | \$6,920 |
| Horseman Axella View Camera Body for Sony E-mount            | \$6,929 |
| Horseman Axella View Camera Body for Hasselblad V-Mount      | \$6,975 |
| Horseman Axella View Camera Body for Mamiya 645-Mount        | \$6,975 |
| Linhof Techno Digital Field Camera                           | \$8,939 |
| Silvestri Bicam Professional Modular Camera Body             | \$1,894 |
| Silvestri Flexicam Prof. Camera Body (Canon/Nikon w/adaptor) | \$2,749 |

**Note:** Prices are estimated street prices for body only

the aperture for the desired depth of field and the shutter speed for correct exposure at that aperture (or the desired shutter speed if you're trying to blur water to freeze it, and the aperture that provides correct exposure at that shutter speed), and cock the shutter. Then attach the film holder, remove the dark slide, and make your exposure. Quickly reinsert

the dark slide, flip the film holder, reattach it, remove the dark slide for that film sheet, and make your "insurance" exposure (or bracketed one). The nuances of view camera operation could fill a book (and have filled several, one being Adams' *The Camera*); for more information, check out one of those, or do a web search for "view camera operation." OP

# LensCoat®

## "We've Got You Covered"

LensCoat makes unique, protective covers for camera lenses, bodies, and accessories. Made from 100% closed-cell neoprene, LensCoat products protect your gear from bumps and scratches, they keep rain and mist away from sensitive equipment, and they also insulate your hands from cold equipment.

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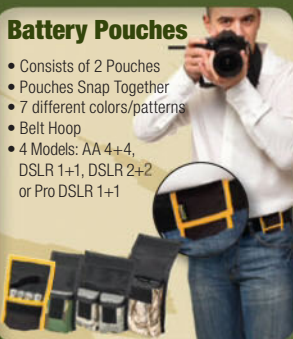


X-Small ..2.75" to 3.25"  
 Small .....3.25" to 3.75"  
 Medium.....3.75" to 4.25"  
 Large.....4.25" to 4.75"  
 X-Large ..4.75" to 5.25"

2X-Large ..5.5" to 6.25"  
 3X-Large .....6.25" to 7"  
 4X-Large .....7" to 7.75"

### Battery Pouches

- Consists of 2 Pouches
- Pouches Snap Together
- 7 different colors/patterns
- Belt Hoop
- 4 Models: AA 4+4, DSLR 1+1, DSLR 2+2 or Pro DSLR 1+1



### LegCoat Wraps (set of 3)

- Wrap around the upper leg of your tripod
- Tightly grips to your tripod so they will not slide



### Memory Wallets

- Lightweight waterproof
- Easy clip on tether
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- 6 designs: CF6/10, SD9/15, Combo 43/66



### Xpandable Series — Long Lens Bags

This is one smart bag. Whether you're in the field or a safari vehicle it's perfect when you want to be ready to take the shot at a moment's notice. The Xpandable bag can be ingeniously folded to three different sizes – or folded flat!

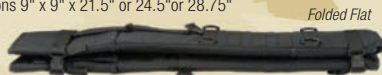
- Removable lid with pocket zips on easily & securely at all three positions
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- Removable harness (sold separately)
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- Expandable exterior mesh pocket
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**3Xpandable** Internal dimensions 8" x 8" x 19.75" or 23.5" or 27.75"  
 Accommodates camera body with lenses such as Canon 200-400mm, 300mm f/2.8, 400mm DO, 500mm, Nikon 200-400mm, 300 f/2.8, 500mm, Sigma 500mm, 300-800mm, Sony 500mm

**4Xpandable** Internal dimensions 9" x 9" x 21.5" or 24.5" or 28.75"  
 Accommodates camera body and lens such as Canon & Nikon 400mm f/2.8, 500mm, 600mm, 800mm



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**Standard** 20.5" 9.4oz



Pro

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- RRS PG Pouch • BeamerKeeper • FilterPouch 2 • FilterPouch 8
- TravelCoat • LensPouches • FlashKeeper • iPad Sleeve • LegCoat Wraps

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## A Face In The Crowd

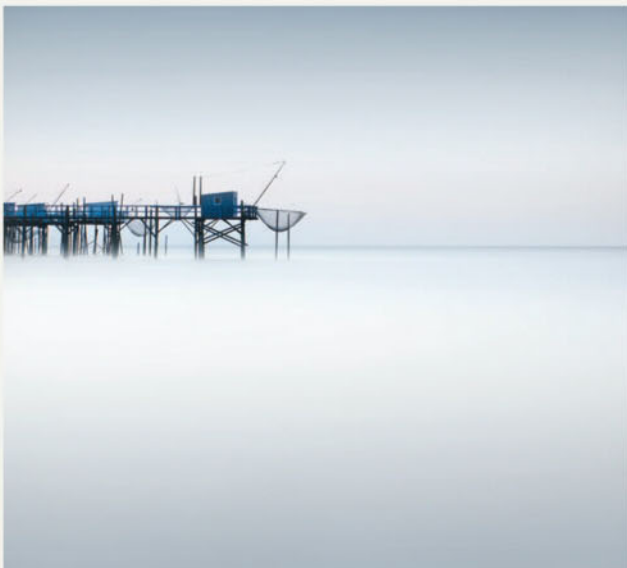
"This image was shot at Cape Cross, Namibia," explains Marsel van Oosten, "home to the world's largest breeding colony of Cape fur seals. The sight of more than 100,000 seals basking on the beach and frolicking in the surf is so impressive that it used to be part of our annual Namibia photo tour—used to, because the overwhelming odoriferousness of piles and piles of stinky seal poo made several of our guests sick to the stomach. Apart from the uncomfortable shooting conditions, getting great photographs here isn't easy. This place is about as cluttered as it can get—you're literally looking at an endless seal carpet that continues as far as the eye can see, with no separation whatsoever. The place is so overcrowded that in order to get from one place to another, seals have to crawl over each other to reach the ocean or get back on land. At the beginning of the year, the reserve has thousands of pups that are shouting for their mothers. It's amazing how a mother will actually find her own pup again after returning from a fishing trip. The biggest threats to these pups are jackal and large male bulls, which can weigh in excess of 350 kg and regularly (accidentally)

squash the pups when moving around. Up to 50% of the pups born don't survive. As a result, there are many dead seal pups scattered around the area, which contributes to the unforgettable smell. It also attracts another guest: the kelp gull. They're the vultures of the reserve, feeding on the dead pups.

"Instead of trying to photograph the seals, I decided to focus on the only thing that stood out from the clutter, the gulls. They walk through the colony, looking for food. By choosing to shoot with my 600mm lens, I was able to compress perspective, and by selecting the widest aperture, I created a very shallow depth of field. This turned the seal colony into a pattern with the least amount of distractions. Shooting a scene like this in Aperture Priority would have resulted in an overexposed gull, so I spot-metered off the gull in Manual to get the right exposure. It's an interesting shot to me because, even though the frame is full of seals, your eye goes straight to the gull; the seals are almost like a forest."

To see more of Marsel van Oosten's photography, visit his website at [www.squiver.com](http://www.squiver.com).

Marsel van Oosten



*LEE Big Stopper, LEE 0.6 ND Soft Grad  
Nikon D3X, Nikkor 70-20mm, 20 sec @ f/18*

## LEE FILTERS BIG STOPPER

Dawn, with its soft, subtle light, gentle tones and fine mists, has always been my favourite time of day to shoot. My intent with the project AURORA was to capture different water locations around the world in that diaphanous pre-dawn light; soft pastel hues and gentle contrast, and a stillness one doesn't experience at any other time of day. As with most of my work I wanted to convey a sense of peace and space, and to help achieve this I would need very long exposures to remove texture from the water thereby simplifying the composition.

In order to achieve those long shutter speeds I chose the LEE Big Stopper 10 stop filter, and combined this with various LEE ND grad filters to control the light. I always prefer to get as good an exposure as I can on location rather than rely on post processing techniques, so the adaptability of the LEE Filter system totally suits my workflow by letting me be creative in-camera.

Jonathan Chritchley  
[www.jonathanchritchley.net](http://www.jonathanchritchley.net)



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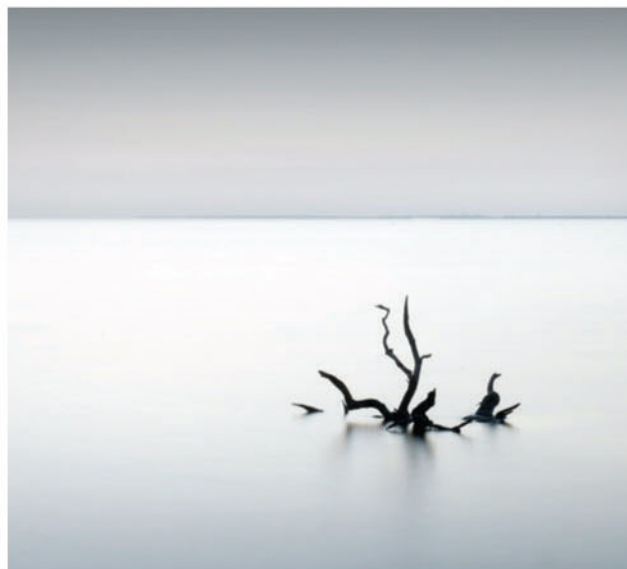
**BOOKING NOW – LEE Filters Photography  
Workshop at Yosemite National Park**

**April 24<sup>th</sup> - 26<sup>th</sup> 2015**

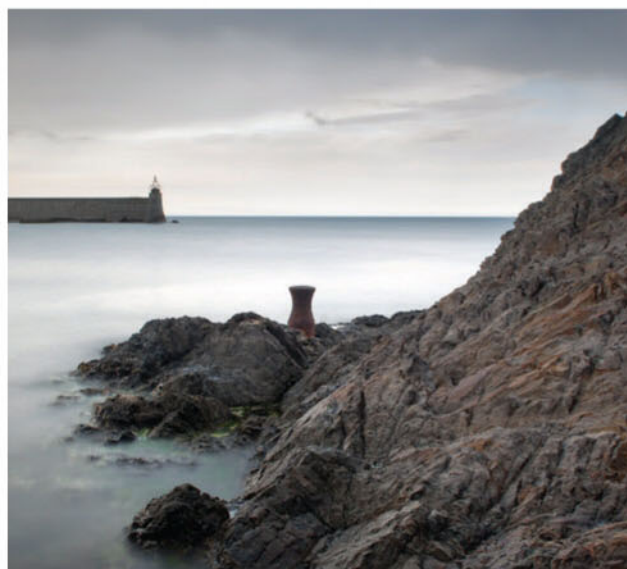
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*LEE Big Stopper, LEE 0.6 ND Soft Grad  
Nikon D3X, Zeiss 21mm Distagon, 106 sec @ f/11*



*LEE Big Stopper, LEE 0.6 ND Soft Grad  
Nikon D3X, Nikkor 24-70mm, 20 sec @ f/9*



*LEE Big Stopper, LEE 0.9 ND Soft Grad  
Nikon D3X, Zeiss 28mm Distagon, 51 sec @ f/9*



α

SONY

# POWER OF STABILITY



Handheld – α7 II, 70–300 mm F4.5–5.6 G SSM II lens, 1/4 sec., F8, ISO 100

## The future of digital imaging. And the next generation of DSLR.

New for 2015: α7 II

The α7 II allows you to take long telephoto shots with slow shutter speeds and smooth, steady video—all without a tripod. Built-in, 5-axis image stabilization fights camera shake in directions that in-lens stabilization can't. Choose from over 60 Sony lenses, or use your favorite non-Sony lens systems\* to capture blur-free, 24.3MP images and outstanding 50Mbps video. The future of digital imaging has arrived—and it couldn't be clearer.

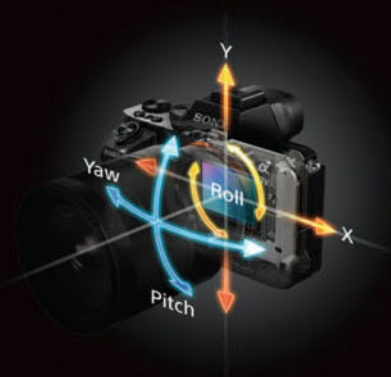
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The world's first full-frame camera with built-in 5-axis image stabilization.



\* Compatibility with lenses other than Sony E-mount requires optional adaptors. Function is not guaranteed and may vary by adaptor and lens.

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